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WESTERN INDUSTRY

VOLUME VII NO. 4



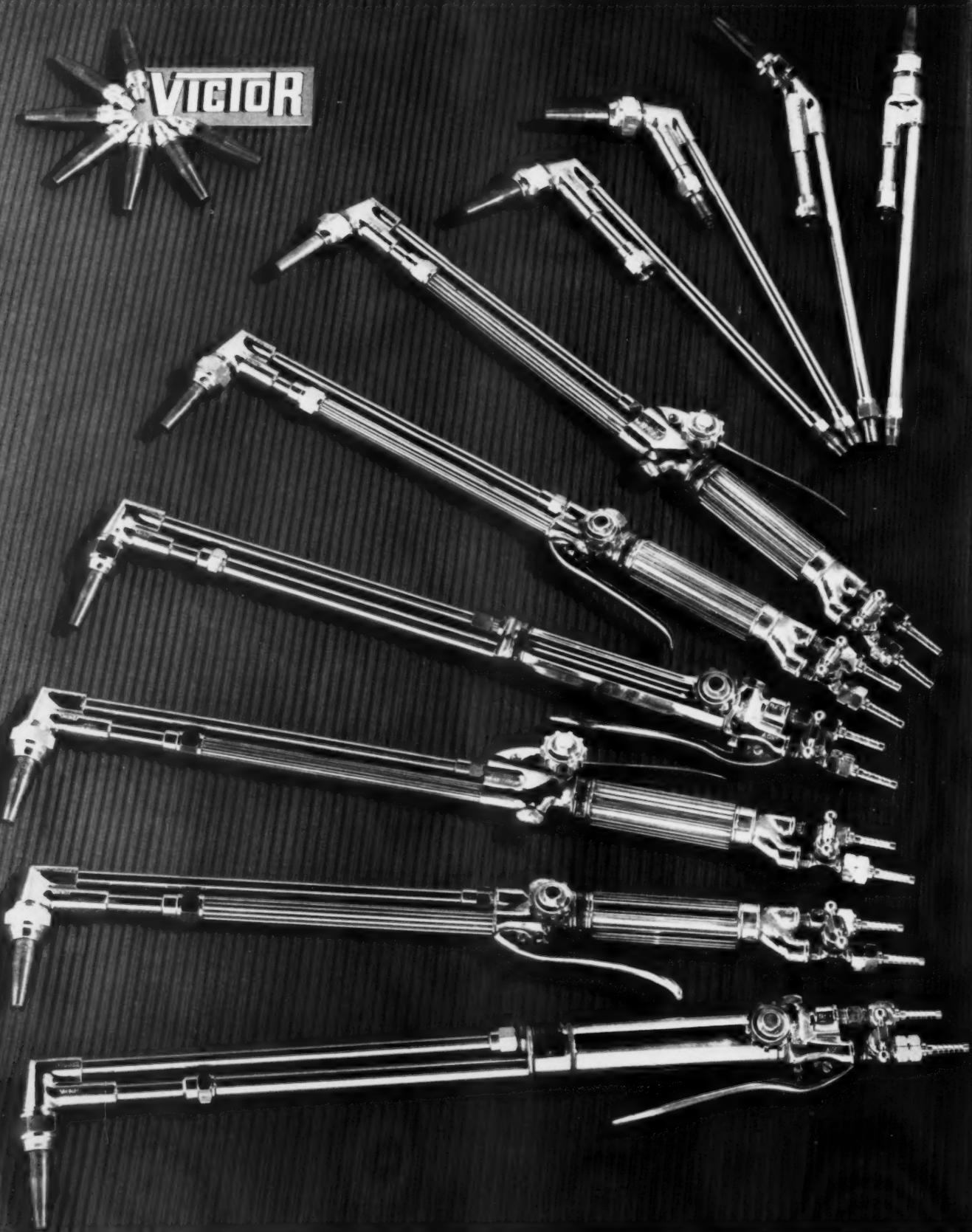
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WESTERN INDUSTRY

The Journal of Western Development

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Production Drive

Important part of the WPB production drive which got under way last month was that provision which apparently made it mandatory at least for holders of prime contracts to organize joint labor-management committees. In plants employing union labor, half of this committee must represent labor. Management after meeting under WPB auspices last week were still wondering as to the future aspects of this radical provision. Some pointers are given here of interest to small plant management for improving morale and output. See page 7.

Washington Scene

Arnold Kruckman, Washington, D. C., correspondent continues to show puzzlement at the way things are trending in the nation's capital. On the one hand, he views the ambitious talks by Donald M. Nelson, WPB head, whose capabilities and intentions he doubts not. On the other, he appears somewhat discouraged at the actual experiences of well-meaning plant executives who have journeyed to Washington to be of help and get into war production. See page 9.

Financing War

The banks of the nation are financing sub-contractors doing war work. These loans are easy to get—the prime consideration is "ability to perform." A banker who handles this type of loans gives some good advice to small plant management which is getting or contemplating getting into defense work. See page 11.

Miscellany

More information on China. Dr. Fong views the prospects for post-war industrialization of the country and tells of the difficulties. Someone will have to supply the money. See page 12. Hardest hit of all as a result of restrictions on purchases of tires will be such Pacific Coast communities as Los Angeles. An excellent survey of the outlook for rubber and its effect on industry is given on page 24.

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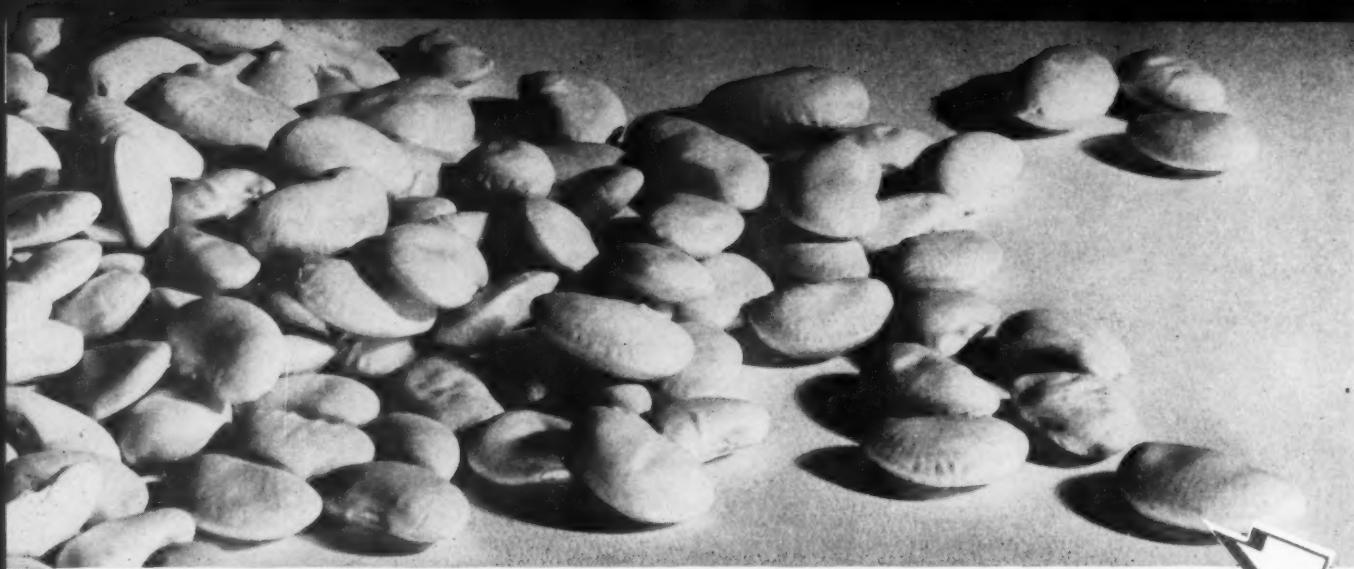
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WESTERN INDUSTRY

APRIL, 1942

VOL. VII, No. 4

Louis F. Holtzman, *Editor*
Arnold Kruckman, *Associate Editor*

Hetch Hetchy

ALL'S WELL that ends well. The troublesome Hetch Hetchy situation has apparently been settled, at least for the duration. A government controlled aluminum plant to be constructed somewhere in the central valley of California will take the entire electric output of Hetch Hetchy. Both the municipality of San Francisco and Pacific Gas & Electric Co. for a long time were "over a barrel." The terms of the Raker Act enabling the construction of the Hetch Hetchy city project on government controlled lands prohibited resale of the energy generated to any private corporation. The United States Supreme Court very properly upheld the explicit terms of the act. Opposition of certain governmental departments at Washington indicated very little chance of revising the Raker Act to permit a continuation of the arrangement whereby a private corporation bought the power and distributed it over its own lines in San Francisco. *This would have been definitely a step in the wrong direction*, according to Interior department policies. Secretary of the Interior Harold L. Ickes was actively behind the move to authorize a municipal bond issue to purchase the distributing facilities of the private corporation in San Francisco. The voters last fall said no. Fortunately, industry in the Bay area will not be affected by the loss of this power. New plants have been added by the privately owned company and more coming. There will be enough energy to supply regular customers and the new war industries in the San Francisco Bay area. We sincerely hope everybody is now happy including Secretary Ickes.

Use Your Salesmen

WITH normal business channels largely closed, the salesman problem for the majority of manufacturing concerns, large and small with nothing to sell, looms importantly. Should trained sales personnel be eliminated with the hope that a competent force can be rebuilt after the war? And what of the hardship on men who are no longer youngsters—highly trained men in their respective lines who will not readily fit into strictly war jobs?

Salesmen highly trained for peacetime tasks can become key men in the conversion of industry to war. They have become key men in helping to convert to war-time production, the American Management Association was told at its March meeting in New York city. Here, Westinghouse Electric & Manufacturing Co. officials outlined what they are doing in utilizing a sales force to aid small manufacturers get into war production; how to get repair parts for old machines. They are also locating old electrical equipment not now being used; advising how it can be put into production with the plant which owns the machinery or in some other section of the country. Sort of a clearing house of information on equipment available among customers. For example, a salesman in up-state New York helped a small railroad get a switching locomotive from a customer in the middle west. Thus, the salesman is serving his country, his customer and building up good will for his company. Here is an excellent idea for many other national concerns able to finance such a program and one which in the long run should pay dividends.

Employment Tactics

THE states lost their own employment departments, since taken over by the federal government early this year, through the insertion of two words—"and elsewhere." The Labor-Federal Security Appropriation Act when pending in the 77th Congress last year was intended to apply to the District of Columbia with respect to employment. The two words did the trick and the government took over without any discussion publicly of the merits of state operation versus federal. Now we have pending H.R. 5510 introduced by Congressman John H. Tolan (D., Calif.) and S. 2333 project of Senator Elbert D. Thomas (D., Utah) going through the works in Congress which need scrutiny. These are designed "to regulate private employment agencies engaged in interstate commerce." It will mean that common labor, farm and domestic workers without union affiliation will have no opportunity to contact employers except through the United States Employment Office. Another step toward regimentation!

How to Get Into War Production

THE biggest mistake any manufacturer can make is to assume that he hasn't a chance of getting war contracts. There are things he can do to get them. Donald M. Nelson, WPB head starting the nation's production drive last month urged the business man to use his *ingenuity*. The WPB has set up administrative machinery to help him. We still have the human equation in these administrative set-ups as many businessmen have found in trying to do business with the government. Resourcefulness and *determination* are needed. We add these words to Mr. Nelson's call for *ingenuity*. *Determination* surely, for you are apt to be disappointed in your first contacts with government officials, many of whom are still groping around in their new jobs.

WPB Tells How

THE War Production Board gives this advice to the manufacturer: A complete survey of his facilities is the first step of every manufacturer who wants war work. This survey should begin with the firm's business record, including description of normal products made. Previous war production experience, financial statement and names of past and present customers should be given for reference.

The manufacturer should take stock of his labor situation. In the survey he should list number of factory employees, peak employment of the plant for one, two and three shifts. Describe the available labor supply, competitive labor conditions and analyze existing and nearby wage rates. The survey should take stock of plant and equipment, describing location, transportation facilities, available water and power facilities and other production factors.

Complete layout plans—accompanied by photographs—should be made of each section of the plant. Finally a list of all tools should be made in which type, make, age, size, and serial numbers as well as tolerances usually followed should be drawn up. Be accurate.

The manufacturer seeking war contracts will do well to keep away from Washington. Officials are busy and better results can usually be obtained locally. Competent businessmen are in charge of government offices maintained here in the west. (See Page 26.)

Convoy of Commerce

Off shore...above coastal sea lanes... among islands...Lockheed Hudson bombers fly guard over ships that carry men and supplies to all our fighting fronts.

These vigilant sentinels are heirs of the first Lockheed Hudson—first American ship to serve with Britain's Coastal Command. In structure, they are the same tough transport design that needed few changes to become a famous bomber.

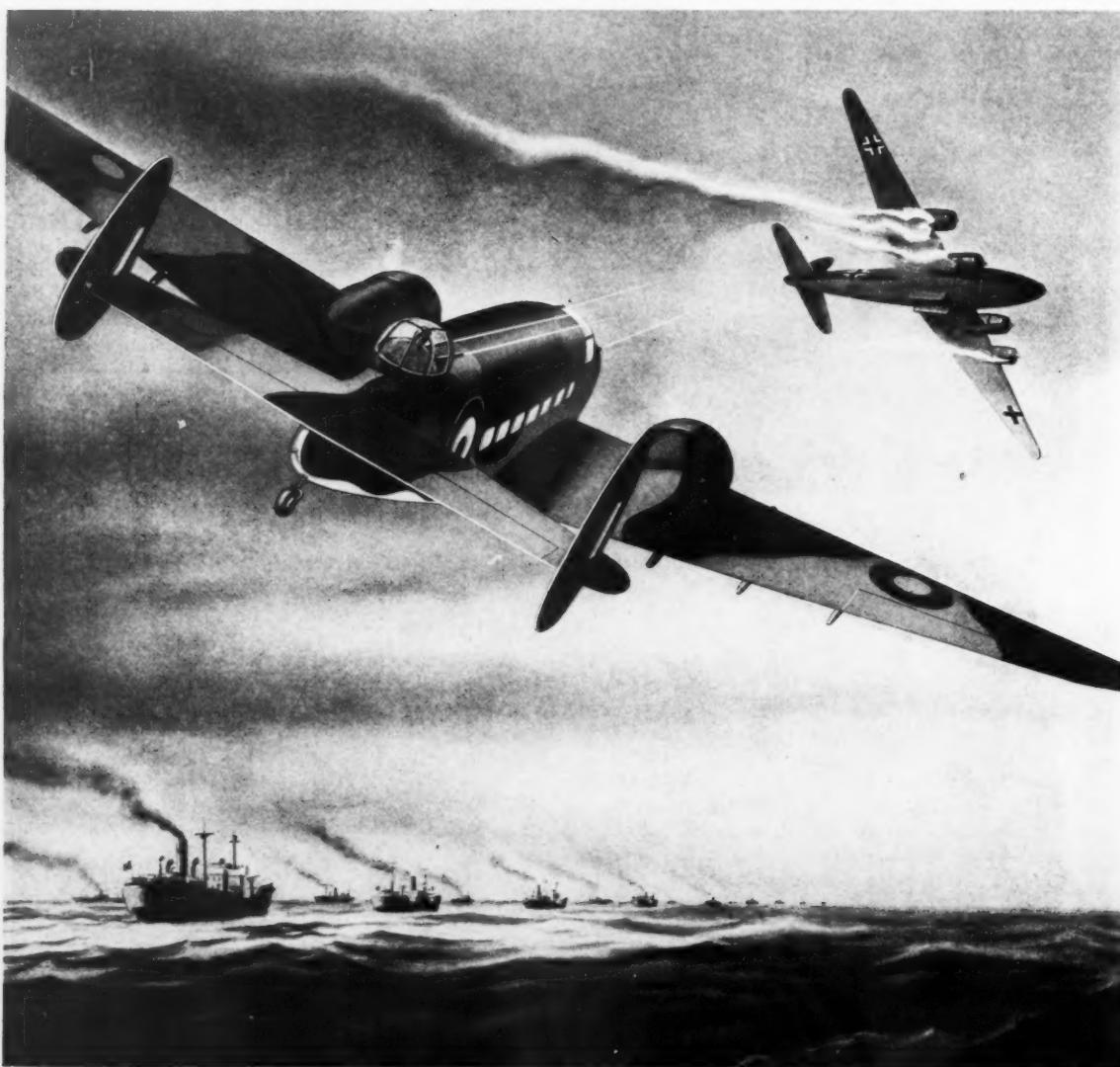
In armament, they are superior...re-armed and turreted to take full advantage of the lessons of total war.

In tradition of performance, they live up to the reputation of the Hudsons that helped perform the miracle of Dunkerque...smashing hard, smashing often, to crush our Axis foes.

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PRODUCTION DRIVE

Management-Labor Committee Functions of New Government Program Are Discussed in Pacific Coast Areas—WPB Furnishes Ideas for Increasing of Plant Morale and Output of War Needs

THE production drive of the nation's industry was officially launched February 27 when President Franklin D. Roosevelt, directing the drive informed Donald M. Nelson, WPB head that "the months just ahead are the critical months of the war—victory depends in large measure on the increased war production we are able to get from our factories and arsenals in the spring and summer of 1942."

The nation's production quotas of 45,000 tanks, 60,000 planes, 20,000 anti-aircraft guns and 8,000,000 tons of shipping must not only be met—they must be topped, later said Mr. Nelson.

Important aspect of the drive was the letter to thousands of plant managements holding prime contracts which went into the mails ten days ago when plant officials were told that "*a government official has been instructed to call together proper representatives of labor and management in the plant to establish a joint committee to direct the production drive in your plant.*" With this letter went an official "plan book" outlining and suggesting methods for increasing production.

Last week the production drive plan began to function. Under WPB auspices, meetings were called in major production centers throughout the country. In-

vited were holders of government prime contracts along with representatives of labor.

Following on the heels of the letter outlining the scope of the production drive and what is expected of plant management, regional conferences of labor and management representatives of prime contracting plants met last month in 27 cities throughout the country. Here on the Pacific coast, meetings were held last week in Los Angeles, San Francisco, Portland, and Seattle. Those attending the conferences went home with a better idea of what was expected of them—many management representatives were wondering just how the management-labor committees would work out in actual practice.

With respect to each individual plant, management was informed that a government official instructed to establish the joint committee above described, "*would make sure that this joint committee truly represents both management and labor,*" and that it would function for the duration of the war. Said Nelson's letter: "He has been instructed to see to it that, in those plants or departments where the workers belong to a labor organization, *the union representatives will constitute half of the joint committee.* . . . The gov-

ernment official will not be a member of the committee.

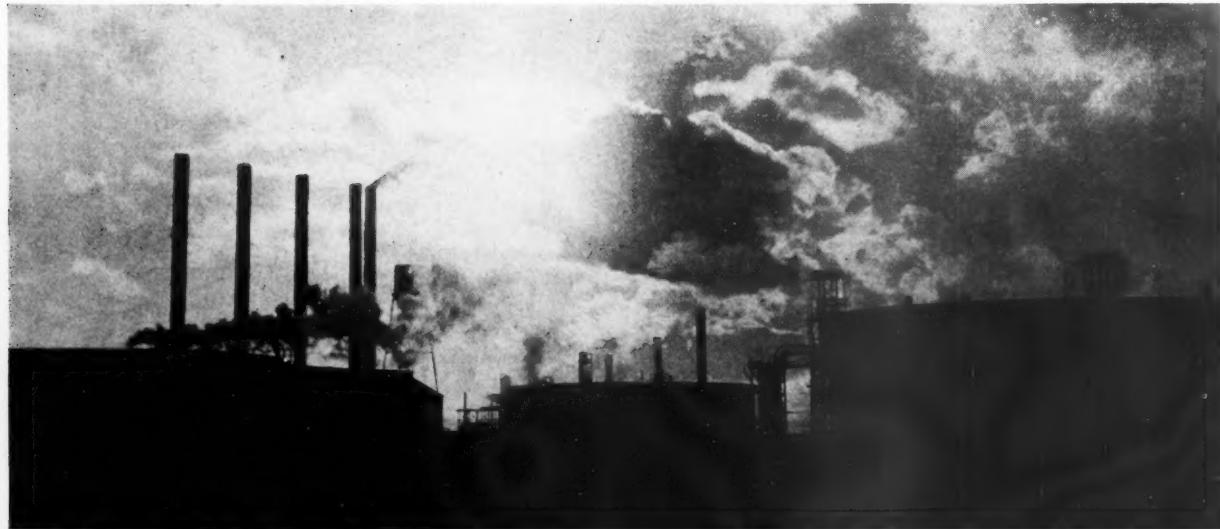
"It is the duty of the committee to study the plan here presented and adapt it to the local problems and conditions or to activities already under way. The success of the plan depends upon the initiative of the members of the plant committee. It shall also be the duty of the committee to maintain contact with the Production Drive headquarters, WPB, Washington, D. C.

"The plant committees must realize that the production drive is not a publicity campaign. It will continue for the duration. It is a joint effort on the part of government, management and labor to increase and accelerate the production of war materiel starting at once and continuing until complete victory has been won by the United Nations."

Individual plant committees as soon as established and acquainted with their duties are instructed to undertake a ten-point program:

- 1—Appoint necessary sub-committees.
- 2—Arrange for the erection of a production scoreboard.
- 3—Arrange for a study of plant efficiency.
- 4—Put up suggestion boxes and arrange for handling of suggestions.
- 5—Set up bulletin boards and arrange for posting special notices.
- 6—Establish a method of production news distribution.
- 7—Establish a sub-committee on posters which will survey the plant for suitable locations. WPB will furnish the posters.
- 8—Start a slogan contest.

• Southern California oil plants are working 24 hours a day to produce high-octane aviation gasoline. Close proximity to the seacoast and handling of highly volatile liquids, both demand a high degree of protection. The difficulty of blacking out contours can be readily visualized from the plant shown below. Photo, Pat Dowling Pictures.



9—Devise a method of informing all sub-contractors and suppliers of the war production drive. Communicate with the Production Drive headquarters at Washington, D.C., listing sub-contractors and indicating which have started in turn a production drive. List the production drive committee personnel of the sub-contractor.

10—Submit not later than April 1, a report of progress addressed to Production drive headquarters. (This date may be extended.)

Plant production committees are instructed to give close attention to such problems as: taking care of tools; preventing plant breakdowns; cutting down accident frequencies; good lighting; maintenance and repair; adapting old machines to new uses; elimination of wastage; breaking production bottlenecks; and utilization of each machine to its fullest extent.

Plant Committee Duties

On the subject of plant production charts, plant committees are instructed: It is important that every worker know what the plant production quota is. Work out a dramatic way of keeping the whole plant informed about production progress. (Indices of percentage figures are better than unit figures.) . . . It is important that every division, every unit and every shift should know just how it is doing. Prominently displayed quota charts are urged. (See cut.)

Plant production committees are also instructed to maintain war production bulletin boards. The following instructions are given: Every day your production quota is exceeded, say so on the board. Put up notices of all contests concerning the production drive. Post names of all winners of contests. Post all important letters from WPB. Post notices of any special award or recognition within the plant. Mention by name and job, any worker who gives helpful suggestions that increase plant efficiency.

Many of the larger industrial plants of the nation already have in effect this program or something similar for increasing or maintaining production and for stimulating employee morale. The small plant operator thus gets the benefit of information on these elaborate but inexpensive programs which have been worked out and proved as successful.

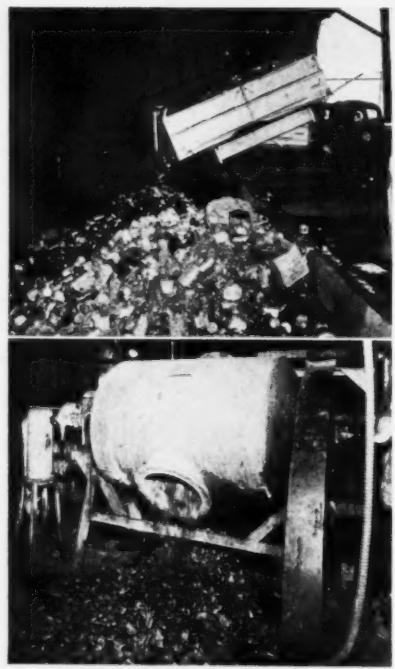
Suggested also is the maintenance of a WPB information stand with ample literature available with the admonition, "Take this home—don't throw it away." This stand should be located near the plant's principal exit or exits. Recommended for distribution are plant progress reports, war bulletins provided by the government and company literature.

Plant production committees are instructed to start slogan campaigns, offering prizes for the best slogans but not cash, making employees with their families eligible. Weekly contests should be held; slogans short and limited to ten words as "Time lost means lives lost," or "The War Won't Wait for the Weapon that's Late."

Use of stickers on machines and tools is urged by the Production Drive such as Go 'Way, I'm Busy—In Action—We've Got a Job to do, Buddy.

Upon formation and functioning of an individual plant committee, an initial report is to be made to WPB headquarters at Washington giving full information as to organization of labor-management committee, sub-committees, and date of action taken on other instructions such as installation of bulletin boards, information stands, posters, etc. Later periodical reports as to progress of these plant activities will probably be required.

Formation of a plant sub-committee on transportation is urged. This committee should start a "pooling plan" so that employees can take turns driving cars to work carrying fellow workers as passengers.



Humorous cartoonists to the contrary, goats do not eat tin cans. Thousands of tons of tin cans which formerly went out of circulation are now being utilized to produce steel scrap and, more important, to recover tin which produces tin oxide which is readily smelted to a grade equivalent to Straits tin. A secret formula utilizing a chemical process recovers tin in South San Francisco at the plant of the Metal & Thermit Corp. A somewhat similar plant is getting ready for operation at the Los Angeles city dump to be operated by the California Detinning Co. headed by Clarence Cass, former head of the Cass Manufacturing Co.

It is claimed that a carload of tin cans produces almost a ton of steel scrap and 24 pounds of tin oxide. Cans are screened, charred, shredded, prewashed and dipped in a solution which yields tin oxide and steel scrap.

• This large plant blackboard shows figures of Hitler, Mussolini and Yamamoto drawn in chalk. To stimulate interest in production, each 10 per cent strip is marked off as quotas are attained. When 100 per cent is attained, the figures will then be completely erased.



WASHINGTON SCENE

Donald M. Nelson's Pep Talk to Businessmen Calling for Initiative Makes Very Good Reading But Some Who Have Journeyed to the Capital with Energy Wasted May Not Agree Entirely with Him

By ARNOLD KRUCKMAN
Associate Editor

WASHINGTON—You undoubtedly heard Chairman Nelson of the WPB make his impressive inspirational talk in March, addressed over the radio to the industrialists and workers of America. Mr. Nelson speaks with an earnestness and conviction that give his

words a weight which remains in your consciousness after you have forgotten the words. Some of those words warrant repetition:

"I have talked to men who blame labor for lack of production. I have talked to labor leaders who blame management for lack of production. I have talked to managers who blame their suppliers. I have talked to suppliers who blame scarcity of materials. And I have talked to a lot of people who blame Washington.

"My answer to each of these people has been: What have YOU done about it yourself?

"To the business men who blame labor, I say:

"What have you done to settle the problem forthrightly instead of merely complaining? Have you really tried to remove the causes of just complaints against working conditions in your plant?

"To the representatives of labor I say: Have you really gone the limit to adjust your differences without stopping production?

"To those who WHINE that Washington hasn't done enough for them, I say:

"Where is your initiative? Where is your enterprise? You are always talking about preserving free enterprise! Where is it? Do you usually get business by waiting for the customer to call you and ask you to take an order? Have you made a thorough study of what the customer wants? Are you prepared to convert your machinery to those needs? Can you show us what you can do? There isn't time for the Army and Navy to determine what every plant can make. There must be initiative and enterprise at the other end of the transaction. If you can show the Army and Navy what you can do and are prepared to do it, most of the problem is solved."



It is quite clear Mr. Nelson thinks the industrialist and the business man of America lacks some of the old wide-awake hustle and drive that has been the symbol of American progress. A day or two after Mr. Nelson made that quoted pep talk there came to Washington an industrialist from the Pacific coast. He represented a plant with an unusual equipment of fine new machinery. The plant has been proud of the extent of its facilities and the capacity of its organization. The managers have had the common experience of losing business because they have not been able to get metals and materials to produce for their civilian customers. At the same time they have earnestly sought to secure orders for some government work. Their endeavor has been more to throw into production in order to supply what the government says is sadly lacking than to make large profits.

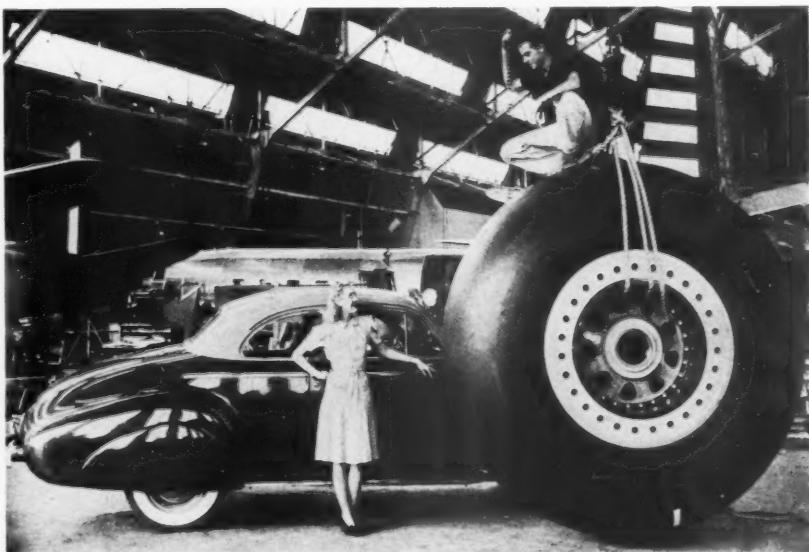
For months these plant officials have been visiting WPB offices and Army offices and Navy offices and Maritime offices in the several cities of the coast. They have been in Washington, here, at least four or five times. Some eight or nine months ago they came to the capital and they stubbornly plodded from agency to agency; they sat patiently in office after office, and they interviewed one man after

another. Eventually they found an Army officer who was friendly, courteous, but entirely discouraging. He said the capacity of their plant was not sufficient to warrant the government to negotiate an order. The government sought plants which were able to produce in much greater volume.

After some months and several more trips, the managers of this plant were able to secure some business. There was the hope they might be able to do more. The order enabled them to utilize about 20 per cent of their facilities. They kept the other 80 per cent going at their own expense. When they came here again after the Nelson talk, they interviewed their Army acquaintances. They were told that things had changed. It would now be the policy of the government to spread the business of production everywhere in any plant qualified to make the things needed. It was announced that price would no longer determine a bargain. The whole transaction would turn upon the ability of the plant to produce. Bargains would be made by simple agreement, without advertising and competition.

Under the new order a plant able to handle a \$25,000 order or even less, would be regarded as a prime contractor just as much as the big plant. The purpose, they were told, was to avoid the creation of more backlog that jammed up in accumulations that would be two or three years in actual production in plants where they were now snagged. They were also told that the whole general policy of procurement was now directed by WPB under Mr. Nelson, and that it would be wise to see Mr. Nelson or his

• World's largest Airplane Tires—each 96 inches in diameter—arrived recently at Douglas Aircraft Co.'s plant in Santa Monica, Calif., for installation on the B-19. One of the main wheel assemblies for the craft's tricycle landing gear is shown. The unit complete—tire, tube and brake—weighs 2700 lbs.



lieutenants to clear the way for more business.

In due course the Pacific coast people landed in the office of C. A. Woodruff, chief of the conversion section in WPB. His office is down in the building on Indiana Avenue, formerly the ramshackle police headquarters of the District of Columbia. It appears to be Mr. Woodruff's job to speed conversion of plants to war work that are now either unconverted or only partially converted. Mr. Woodruff strives to secure more production. It appeared that Mr. Woodruff did not feel there is as yet much business for plants with limited facilities. His idea seems to be that it is essential to put into operation the larger facilities, those which can handle orders far greater than a total value of \$25,000, and which have no need for new machinery or additional equipment. Plants needing financial help can secure a third of the price of the order in advance. But it seems quite clear that the little fellows, the intermediate and "small" business units, as yet can only get some of the crumbs that fall from the tables of the bigger plants with the bigger orders. At least that is Mr. Woodruff's idea, expressed exactly in those words.

These industrialists from the Pacific coast finally went back home. They have not given up their effort to secure some more business. But they have gone back to study the situation. And they sincerely wish to find out if they were wrong in coming here. Over and over they were told by WPB officials there is no reason for wasting their money and their time and the time of the officials in Washington by coming here to get orders. They were told the orders may be had right back on their own doorsteps.

• Machetes for the Orient—fur parkas wanted for Alaska. All these and thousands of other items are shown at the permanent war clinics. R. W. Hawksley, manager of WPB sub-contracting exhibit at the Whitcomb Hotel, San Francisco, is explaining to manufacturers how to get into war production work.

Those of us here who are familiar with this incident are keenly watching to see what will happen. We wonder if they will get some business. Their experience is a vivid illustration of what we witness repeatedly. There is scarcely a day in the week we who live here do not have visitors who seek in desperation to know what to do next. Invariably they have exhausted the approaches in the various WPB and Army and Navy offices back home, and they have come to Washington in the hope they may be able to break through to business somewhere. They usually find it is difficult to locate the right man. They cannot find the keylog, as it were. The Tolan Committee, headed by Congressman John H. Tolan of California, in the report published on March 9, says:

"Small plants just cannot secure war work under the present competitive bidding system. The result is that larger concerns that should be used for more difficult jobs are making things that should be made by the smaller concerns.

"The smaller concern, without full-time accountants, auditors, tax experts, Washington agents or lobbyists, and other aids, cannot compete with those concerns that do have these advantages. . . . Under the present system they are wasting a great deal of time and money attempting to bid and are securing no business, thus being unable to render the war program any material assistance."

Someone somewhere has estimated that less than 10 per cent of the production facilities of the nation are as yet utilized for war work, and that the rest, over 90 per cent, already have been hard hit by the effect of war shortages. Off the record, officials will tell you here that unquestion-

ably the largest part of the 90 per cent either have been here, or have visited the 300 or 400 field offices, hunting some of the war business about which they have read so much or have heard about in radio talks. The Tolan report estimates there are over 700,000 machine tools scattered around among the smaller plants of the country that could be used for war production. The Tolan report declares:

Tolan's Report

"Where smaller business did obtain war contracts, the committee found that they were often unable to secure necessary materials despite the fact that these contracts commanded high priority ratings. In the absence of key business connections and bargaining power, the smaller companies were compelled to turn to a large number of manufacturers to secure necessary raw materials. A smaller manufacturer in need of a small quantity of raw materials often had to make a greater number of contacts and wait a longer time than a large corporation, even though the smaller company may have had a higher priority rating. Such difficulties were not the result merely of material shortages; they existed with respect to the purchase of steel, where over half the supply was still available for non-military purposes."

What is the answer? Mr. Nelson says it is in a great production drive. He asks for greater production per machine. He asks 168 hours of work per machine. He suggests plant quotas, and competitions among plants, and among the men in the plants. He suggests that the production soldier be distinguished much as we distinguish the soldier in the field. Says he: "The war can be lost in Washington. It cannot be won here. That can only be done on the battle-lines that now extend around the world, and on the production lines that extend across this nation. Those production lines will determine whether we hold the battle-lines and whether we ultimately crush the enemy."

I keep thinking about those 700,000 machine tools Congressman Tolan and his committee say are idle. And the 90 per cent plus production men who are hunting war work.



FINANCING WAR CONTRACTS

Pointers to Sub-contractors and Others in Handling Government Business — Diversion of Too Much Working Capital Into Fixed Assets Has Been the Cause of Many Small Plant Financial Crises

By T. W. JOHNSON

Asst. Vice President and Manager, War Loan Department, Security-First National Bank of Los Angeles

HOW does a banker analyze war loans and what suggestions would he make to those in industry who may require bank credit? Here are several points that may prove of benefit:



1.—Take your banker into your confidence. The war program has called for loans in many instances in excess of the net worth of the manufacturer, consequently in many cases the banker virtually has become a partner in the business, a relationship calling for a very large degree of mutual trust. Therefore, treat your banker as you would your partner. Tell him the bad news, as well as the good. If you do, you will notice the added response in confidence and cooperation. The banker has many avenues of information and should he learn from someone on the outside that things are not going well, you cannot blame him if his confidence in your firm is rudely shaken, and he takes drastic steps to protect his investment.

Remember that credit and banking are both predicated on confidence. When that is taken away, the whole structure falls. Always consult and advise with your banker continually. A good idea is to make your arrangements for borrowing before new contracts are taken on or bids made because you want to know that financing can be obtained before you assume the liability. The banker similarly will want to know the nature and terms of the proposed contract before you commit yourself, particularly if he is financing other jobs for you.

Your banker has countless sources of information on vital problems which will undoubtedly prove helpful to you. He is always willing to discuss your affairs and assist you to the fullest possible degree. His knowledge and experience may be a real help to you in your business.

2.—Know your costs. Many businesses have grown so rapidly that their previous system of determining costs is wholly inadequate for their expanded volume. There are instances of small concerns who have accepted a single contract equal to a whole

year's business in previous years. An error in costs under these circumstances can prove disastrous even though the percentage of the error itself may be nominal.

Under no circumstances is it sound business to skimp or to conserve on your accounting records when you are dealing for the most part with the manufacturing of a new product. At best there are plenty of other factors that can upset your calculations without adding one that is completely unnecessary.

Thousands of small plants have converted to war work—others are in process of conversion and thousands are seeking to convert. Here is some sound advice from a banking viewpoint on what to do and how to do it—pitfalls to avoid—if you have or are seeking government work.

3.—Work up a budget. Like a pilot of a ship, you should chart your course in advance by preparing a financial budget. This should show your approximate financial situation at any given point of time during the manufacturing period. By scheduling all receipts and disbursements you will know what borrowings may be required and the approximate time for their repayment. Arrangements for these borrowings can then be made in advance with your bank. Make your estimates liberal rather than too conservative.

Without a budget you can only guess at your requirements. If you are continually guessing and underestimating your needs so that you come back for more and more loans for a particular job, your banker is apt to lose confidence, not only in your ability but also in your records. With the increase in volume and complexity in business organization, it is neither safe nor sound management to depend upon guess-work when sound planning can be substituted.

4.—Watch diversion of net working capital. Net working capital is the sum remaining after deducting accounts payable and other current liabilities from the sum represented by cash, receivables and inventory—including work in progress. In many concerns now engaged in war production it has been necessary right at the beginning to invest substantially all available funds in fixed assets, leaving only relatively small sums for net working capital. In these cases it has been necessary to depend heavily on trade creditors and borrowed money to complete the work. Dependence of this kind has many risks. Wise management will build up net working capital by permitting profits to remain in the business.

A reduction in working capital by untimely diversion into fixed assets can often bring about a financial crisis, through inability to meet obligations when they become due. If your business is now operating with limited net working capital, you should be very careful not to make an investment in machinery or other fixed assets exceeding net profits (after deductions including taxes) without very careful consideration. It is a good plan to discuss with your bank beforehand any contemplated investment of a fixed character.

Continued on page 34

• "An army travels on its stomach," said Napoleon. Shoes are just as necessary. Here is shown the interior of one of the mobile shoe repairing units operated by the United States Army which travel almost to the front lines. U.S.A. Signal Corps.



CHINA'S INDUSTRIALIZATION

This Country Will Make Great Effort After the War and Blockade Is Lifted Toward Rehabilitation Under New Leadership But Will Need a Source of Capital Supply—Industrial Cooperative Success

By DR. H. D. FONG

Economist and Expert on Chinese Affairs

INDUSTRIALIZATION begins with the possession of capital. In the West, (China) the accumulation of capital had taken place for many centuries before industrialization set in during the second half of the eighteenth century. In England, the birthplace of industrialization, the expansion of foreign trade from the fourteenth century onward resulted in an accumulation of capital which provided the basis for industrial development. In China, capital accumulation is insignificant for many reasons. Here, foreign trade almost is negligible when compared with her enormous population. Trade all along has been domestic; such trade likewise is limited because of the self-sufficient character of her national economy. The predominance of agriculture over industry and trade ties up whatever meager capital she may have accumulated in the form of investment in land which is immobile.

The time-old family system calling for equal division of property among the descendants is a deterrent to large-scale accumulation of wealth, which probably accounts for the necessary provision of capital by the state when the first factories were started in the early sixties under the Manchu dynasty. Today, after a period of

eighty years, modern industrial capital amounts to only 3,808 million dollars (pre-war value, approximately equivalent to 1.3 billion U. S. currency,) which estimated on the basis of population of 450 million gives a per capita share of less than nine dollars. (1) It also must be noted that small as the total industrial capital is, the share for domestic capital reaches only 987 million dollars or 26 per cent, the rest, 2,821 million dollars, or 74 per cent, being foreign capital invested in China.

The problem of capital looms large when it is remembered that a large part of modern industrial capital in China today has been destroyed in the course of the past four and half years of war. Much of China's modern industrial capital is located in areas now occupied by the Japanese, while in "free China," mainly in southwestern and northwestern regions, modern industrial capital is only a recent development. Before the Sino-Japanese war, southwestern and northwestern China did not possess more than, at the best, one-tenth of China's modern industrial capital. When the war came, a good part of the modern industrial capital in the "occupied" areas was abandoned or destroyed, while the rest was removed, first from Shanghai, Wusih, and Nanking to Hankow and Changsha, and later to Chung-

king, Chengtu, Sian, Kweilin, Kweiyang, and other places.

Meantime, in the rear provinces, new factories were erected; so were workshops under the impetus given by the Chinese Industrial Cooperative Movement, popularly referred to as "The Indusco." All in all, modern industrial capital in "free China" today has increased over that in pre-war days, but in aggregate it cannot have reached, as a rough approximation, two-tenths of the modern industrial capital in pre-war China. The sum is thus altogether inadequate for China's industrialization, even on a moderate scale, and naturally, gives rise to the question as to sources of capital supply once the present war is over and the all-embracing blockade is lifted.

We here in the Pacific West are obviously more interested in the internal affairs of China than the average easterner. When the war is over, this country logically will play the important role in the rehabilitation of China, financially and industrially. This is the second of a series of articles prepared by Dr. H. D. Fong, professor and research director, Nankai Institute of Economics, Nankai University, Chungking, now stationed at Harvard University. This article deals with industrial prospects for China. A third will review its topsy-turvy agricultural situation.

Modern industrial capital in China is divided in ownership, three-quarters being foreign, and one-quarter Chinese. Foreign industrial capital in China, which increased greatly after the conclusion of the Treaty of Shimonoseki with Japan in 1895, granting under it the right to erect factories on Chinese soil to foreigners, all along has been an important factor in China's industrialization, and undoubtedly will continue to be so once China decides to rebuild her industrial areas upon the conclusion of the present war. Two problems then will present themselves in connection with the utilization of foreign capital. The first is political; that of separating foreign investment from foreign political control. The second is economic. In the past, foreign investment had been a means towards the acquisition of foreign rights and interests—the so-called foreign "spheres of interest." Of this, the most notable example is that of the South Manchuria Railway. This company, as has been well remarked by a recent writer:

"... deserves to rank with the East India Company and the Hudson's Bay Company as one of the great semi-governmental economic organizations of history. Founded after the Russo-Japanese war with a modest capital of 200,000,000 yen, part of which consisted of the damaged and depreciated properties which had been taken over from the Russians, it has grown

• American trucks for Chinese roads. This country supplies practically all of the automotive equipment for China, and a huge demand looms after the war as corollary to roadbuilding.





• It is by these primitive methods that China, lacking machinery, is building her war roads. Coolies here work side by side with soldiers to keep open the Burma road, since cut by the Japanese.

on a truly imperial scale and today is far and away the largest corporation functioning in East Asia. Receipts of 12,500,000 yen in the first year of its operation had increased to 302,000,000 yen in 1935-36. Besides operating what probably is the most efficient railway system in Asia, the South Manchuria Railway is a heavy investor in almost all the major industrial enterprises of Manchukuo, in Fushun coal, Anshan coal, a new chemical company, and many mines, mills and factories."

—(W. H. Chamberlain, "Japanese Asia")

China, when the war is over, will be greatly depleted of her meager capital stock, and inevitably must look towards the creditor nations, especially the United States, to finance her industrial development. The separation of investment from political control then will have to depend on the extent to which China can satisfy the minimum demand of her foreign creditors, namely, peace and order which is the indispensable to profitable investment.

The second problem—economic. When Dr. Sun Yat-Sen, founder of the Chinese Republic, advocated in 1922 in his international program of China foreign investments for Chinese industrial development, the world was confronted with the problem of excess industrial capacity arising from the cessation of the First World War.

The second World War now in full swing, is far more extensive in area as well

as intensive in capital destruction. When it comes to an end, it remains a problem whether the excess industrial capacity arising from the cessation of war will be diverted to rehabilitation at home by respective foreign governments or to overseas investment. It is certain, however, that the United States, as the world's leading nation in possession of an excess capital seeking for investment, will have, despite the financial drain which she may have to sustain on account of her recent war against Japan, Germany and Italy, sufficient capital seeking for investment in foreign countries after the war is over. Now that she has thrown in her lot in common with China, Britain and Dutch East Indies in the Far East—the ABCD alliance, and definitely has committed herself to the defeat of the Axis powers, including Japan, a nation noted for its "brilliant feat of deception," her interest in China post-war industrial development no longer is purely economic, but also highly political.

It is only with a free and independent China, given chance to industrialize with foreign financial and technical aids that she may serve as a stabilizing factor in the Far Eastern politics. Already, not a few people have advocated a long-range industrial development project akin to the Tennessee Valley Authority (TVA) to be launched in post-war China, which will embrace a program of comprehensive industrial de-

velopment with American capital and technique covering the basic needs of post-war China for modern means of transport, scientific agriculture and large-scale manufacturing.

The possibility of raising capital from among the Chinese themselves is twofold; namely, from the Chinese at home and from the Chinese overseas. Capital within China is derived from credit expansion, as well as excess of production over consumption. Under a unified fiscal policy, the four government banks—Central Bank, Bank of China, Bank of Communications and Farmers' Bank—can expand their credit, reduce the rate of interest, and thus encourage investment in China's post-war industrial development. Income from these investments when saved but not consumed will be available for further investments, and thus the process tends to become cumulative and an expanding capital fund may be created for the purpose of financing China's post-war industrialization.

The process of raising capital through excess of production over consumption is less hopeful than that of credit expansion. The low standard of living in China, which has been much reduced on account of the war, cannot be expected to sustain still further encroachments. Thus, consumption cannot be reduced through lowering in standard of living, although with

Continued on next page

WPB SET-UP



• Here, again, are shown the primitive methods of the Chinese in their roadbuilding. Gangs of women are enrolled to work on the roads and are here shown removing dirt in small baskets suspended from shoulders. Huge roadbuilding program looms after the war.

better income of distribution, there still may be margin for economy. Production, on the other hand, cannot be increased unless accompanied by mechanical improvements that will have to come through industrialization. However, the capital that

has fled abroad in course of the war, estimated to be \$200,000,000, and blocked since July 25, 1942 at the request of the Chinese Government by the Governments of the United States and Great Britain to which most of the Chinese capital in flight has gone, should be placed with due compensation in the hands of the Chinese Government for post-war industrial development.

A second source is the investment by the overseas Chinese, who in the past have contributed a fair share towards Chinese industrial development in textile, chemical and other enterprises. But with the imposition of restrictions on capital export by most of the governments to which overseas Chinese are subject on the one hand, and the narrowing of opportunities of profit-making and capital accumulation for the overseas Chinese in recent years on the other, the prospect for capital investment by overseas Chinese in China's post-war industrial development apparently has become more uncertain during and immediately after this period of world-wide upheaval.

No Asparagus

The United States Army will have to get along without asparagus on its diet list. At San Francisco last month, Harry Camp, OPA regional director said that Washington had advised him that asparagus would be eliminated entirely from the army and that the government would not purchase a single case on account of price rises made effective.

Canners were in something of a spot claiming higher production costs, chief of which was labor.

THE War Productions Board got into action last month. First step of the chairman Donald M. Nelson was to set up six major divisions. Said Nelson: "The job of the WPB is going to be that of reviewing constantly this question of how the production is going, what are the bottlenecks, what changes in organization need be made in order that it will go faster and what are the things that are impeding the program."

The various changes have been publicized in the press. For ready reference, action to date is here summarized (See page 26 for directory of Pacific Coast government bureaus and personnel):

Division of Industry Operations: Washington head J. S. Knowlson. The job of this division will be to get as much conversion of industry as quickly as possible. It also absorbs the former division of Priorities.

Materials division: headed by W. L. Batt: The responsibility of this unit is to see that materials come out of the mines and factories to supply the needs of the WPB program. Will also supervise the demands made by the Board of Economic Welfare, Lend-Lease, Civilian Supply, Army, Navy and Marine commission. In short the job will be to determine how and where materials can be obtained.

Purchase division: Headed by Douglas MacKearie. Works with the Army and Navy streamlining procurement methods. As in the past, purchases will be made by the military arms. More civilian representatives will be taken in by the Army and Navy to work with service men.

Production division: headed by W. H. Harrison. This unit will see that industry is doing a good job and will work closely with the division of Industry Operations to control industry through priorities and allocations. Absorbs the former division of Contract Distribution.

Labor division: headed by Sydney Hillman will see that labor's part in the program is efficiently organized.

Civilian Supply division: headed by Leon Henderson will look after essential civilian industries. Office of Price Administration is part of this division as are various rationing boards.

The OPA has full authority to ration all goods and commodities sold on the retail markets to ultimate consumers in addition to price control powers. OPA may exercise rationing power over: (1) the sale of products by any person who sells at retail; (2) the sale of products by any person to an ultimate consumer acquiring the products for the satisfaction of personal needs, as distinct from business or industrial needs.

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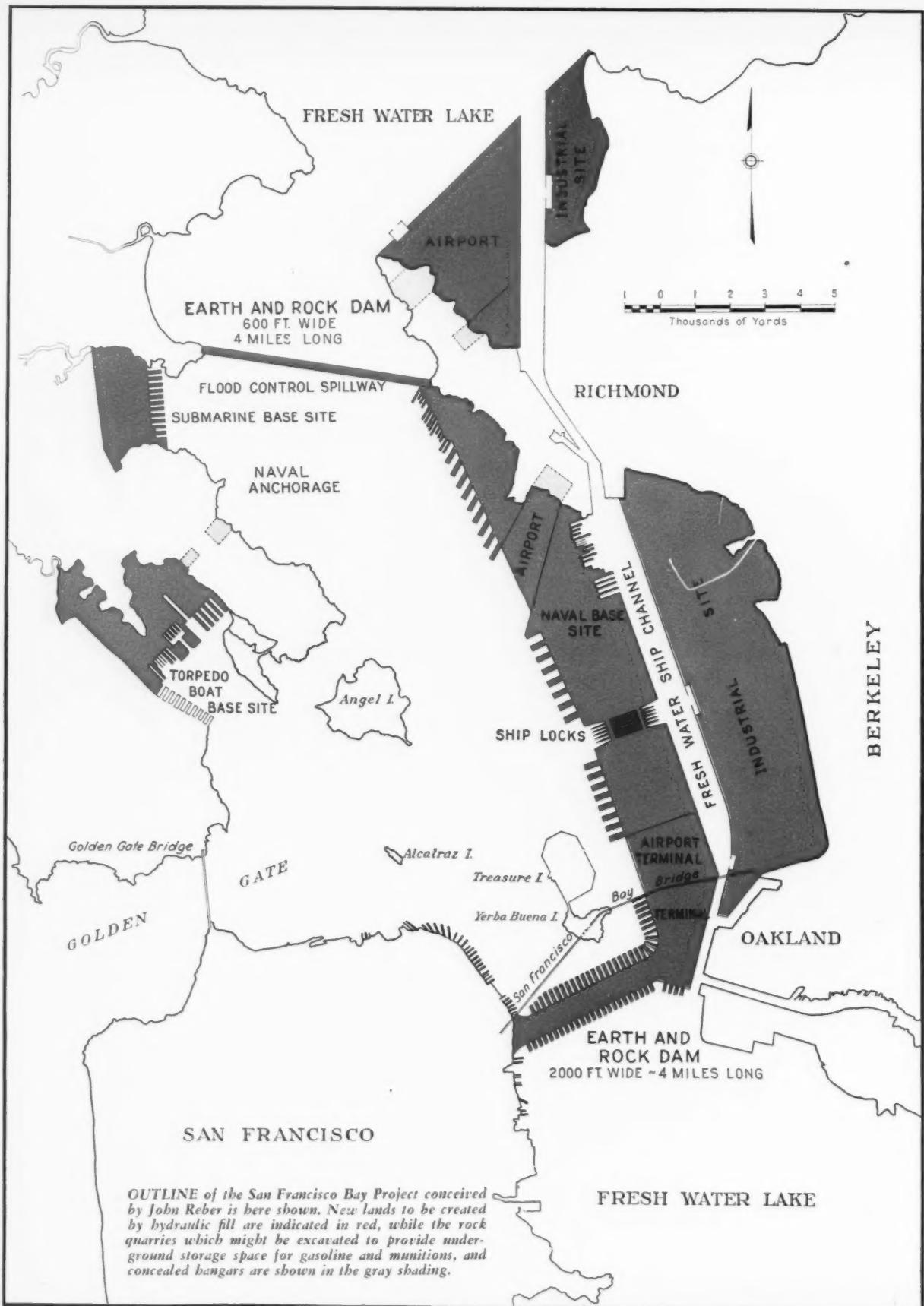
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SAN FRANCISCO BAY PLAN

Culminating a Ten Year Study, the Reber Project for Development of the Harbor May Now Receive Official Investigation—Industrial Sites, Military, Air and Naval Bases Provided in Huge Undertaking

WAR EMERGENCIES may well provide the stimulus for an official investigation of the aspects of the San Francisco Bay Project. Utilizing the natural advantages of San Francisco harbor augmented by man-made facilities, the project, according to sponsors' claims, could start an industrial expansion toward development of the Bay area as the foremost industrial region of the Pacific coast.

Ranking high in magnitude of those contemplated or proposed projects for the Pacific coast, the plan proposed by San Franciscan John Reber has many military advantages. The plan has been examined by responsible engineers and pronounced as entirely feasible—the cost commensurate with the advantages to be gained from both the military and industrial viewpoint. Estimated two years ago as a \$120,000,000 job, this would approximate the combined cost of the Golden Gate and San Francisco-Oakland bridges which cost \$36,000,000 and \$78,000,000, respectively. Present day increased costs may add \$20,000,000 to \$30,000,000 to those original estimates.

Deeper Harbor

The project would increase the deep water harbor line by 50 miles, establish broad salt water barriers across both ends of San Francisco to carry highways and railroad lines. It would form two fresh water lakes at the north and south ends of the bay (see outline map) and more important—provide about 20,000 acres of newly created lands available for industrial and transportation uses, military, air and naval establishments. Badly needed unification of the bay area transportation system would be attained with the barriers at either end of the bay carrying railroad tracks and highways to provide rapid transportation. These are Reber's claims and he substantiates them with maps.

Important advantages claimed by Reber and with apparent logic are elimination of freight barging across the bay from Oakland area to San Francisco; provision for several centralized industrial districts on newly created lands for both San Francisco and Oakland, and for Contra Costa county.

The original thought was for the creation of better facilities for the naval, air-force and military arms, to provide indestructible transportation arterials across San Francisco bay for trains, motors and military equipment, and to save and make available a storage of fresh water in the

created fresh water lakes. Industrial advantages are deemed no less important.

Resolutions recommending governmental study and investigation of the project have been passed by the Senate of the California State Legislature and the San Francisco Board of Supervisors. Numerous civic organizations, including the San Francisco Junior Chamber of Commerce have examined the plan and are in back of it. Senator Sheridan Downey (D., Calif.) has introduced a resolution in the U. S. Senate seeking to include the project in the study and investigation of western facilities by a senatorial sub-committee of the Military Affairs committee.

A Government Project

The magnitude of the project, its military and naval phases and effect on bay navigation necessarily place it in the category of those which must be handled and financed by the government. The eventual decision will lie with the Corps of Engineers of the U. S. Army.

The project is a rock-wall and fill structure with the fill from the bay bottom placed by suction dredge, and the rock at hand in adjoining hills (see map); plus the ship locks and subways for carrying land traffic beneath the narrowed portions of the ship channel. Thus, little strategic metals or materials would be required.

Reber believes that major industry of the San Francisco bay area now and for the future is in the production of ships. He likes to refer to his friend, the late Charles M. Schwab of Bethlehem Steel who once told him that the San Francisco bay area was the finest place in the world to build ships—the reasons for which could be summed up in one word—"weather." In the handling of iron and steel, the climate is ideal—"not too hot; not too cold." Mr. Schwab's opinion and others may differ.

Essence of the plan consists of two earth and rockfill dikes or moles, one reaching from San Francisco at a point just below the terminal of the bay bridge to west Oakland. This mole would be nearly one-half a mile wide carrying direct to San Francisco the three railroad lines which now terminate at Oakland. The second mole would extend from Point San Quentin to Castro Point west of Richmond, not so wide as that at the southern end of the bay but nevertheless capable of carrying rail lines and highways.

The upper mole could carry the North-western Pacific Railroad to a terminus in the East bay and via the mole at the lower end to San Francisco. These two moles would carry all railroads of the Bay area into the city of San Francisco. It would facilitate freight exchanges in the general freight switching and handling terminal in Oakland.

Included in the project is provision for a ship canal along the east side of the bay, filling in of the east side of the canal over a three-mile width, filled-in ground on the west side for new land, and a multiple ship lock between the bay and ship channel. Ships would thus pass from the salt water bay through the locks to the fresh water ship canal and to inland points, the west Oakland terminals and San Joaquin and Sacramento river points. The two fresh-water lakes covering lands now submerged and of little use would provide recreational facilities; provide possible solutions to present water supply and aid flood control.

Reber's surveys indicate that a portion of the normal volume of the Sacramento and San Joaquin rivers which now flows into the salt water bay and is wasted, can be brought down through the ship canal to supply water requirements of surrounding lands of the lower arm of the bay. Ships would have ready access to Oakland, Mare Island, south bay and river ports through the locks connecting the ship canal and the bay.

As shown in the accompanying map, San Francisco bay would be divided into three parts under the proposed plan. The central portion of the bay from a line south of the San Francisco-Oakland bay bridge to a line from Point San Quentin to Castro Point would constitute a deeper salt water harbor with additional sites for military, naval, air and industrial projects. The large south arm of the bay would be transformed into a fresh water lake with surface elevation held constantly at about high tide levels. The north arm of the bay would likewise become a fresh water lake with the same elevation.

Moles to Divide Bay

Division of the bay into these three parts would be accomplished through the medium of the two earth and rockfill dams. The larger, about 2,000 feet wide and four miles long, would extend from a point just below the present Bay bridge west terminal to a point in the bay near the mouth of the present Oakland estuary.

The second dam about 600 feet wide and also four miles long would extend from Castro Point, west of the Standard Oil refinery at Richmond, to San Quentin Point in Marin county.

To enable passage of turbulent flood waters of the Sacramento and San Joaquin rivers to the bay and ocean, the north

Continued on page 29

INDUSTRY TRENDS AND POINTERS

Transportation Survey

ONE of the most important public transportation surveys ever attempted is now under way, being conducted jointly by the Los Angeles Chamber of Commerce and the California Railroad Commission. Reason: any drastic curtailment of automobile transportation will have serious repercussions on industrial operations, retail trade and the way of life for practically all residents. To a lesser degree, the same applies to many other western communities which have attained their present stature in the "automobile era."

Los Angeles residents are dispersed eight times as widely as those of New York city; six times as widely as those of Chicago. Thousands of employees of at least six major aircraft producing plants within a 20 mile radius of the city travel

to work in jalopies. Fifty-five per cent of the persons entering the downtown zone travel by auto; 70 per cent of industrial workers travel to work by auto.

If nothing is done, alternatives loom. Aircraft workers whose plants adjoin railroads can be hauled to work on flatcars—thousands may be bicycling to work—bus lines into town can be terminated at the outlying end of street car lines with mass transfers for sardine-packed rides to destination. All these things are being seriously weighed.

More than 500,000 employees of 150 plants of 500 or more workers will have their individual transportation methods tabulated and analyzed. The employees will supply data on where they live; how they travel; condition of private cars and tires; and how long conveyances can be expected to function. This information will

be compiled by trained statisticians and tabulated on maps on the basis of a solution and under the direction of Harley E. Andre, head of the chamber's transportation committee.

Rents Regulated

OPA head Leon Henderson last month took official action under the new price control act to bring down rents and designated 20 groups of communities in 13 states as "defense rental areas." These communities were notified that they had until the end of April to restore rents to "proper levels."

On the Pacific coast, San Diego and the Puget Sound, Washington area were affected by Henderson's action. San Diego with a population of 260,583 (1940 census) including outlying communities of Encinitas, National City and part of El Cajon lying west of the Cleveland national forest must bring maximum rents to those prevailing January 1, 1941. The Puget Sound area including Kitsap county and parts of King and Pierce counties lying west of the Snoqualmie national forest (1940 population 731,448) must bring rents to levels prevailing April 1, 1941.

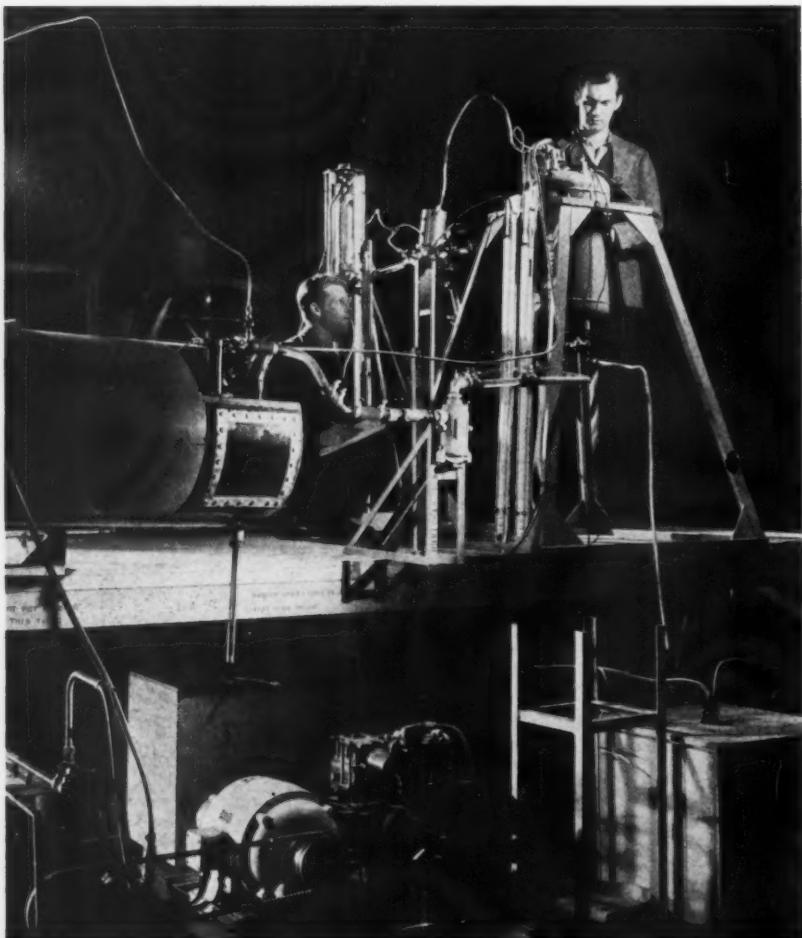
San Diego and Seattle included in the areas have been most affected by soaring rents. Some house and apartment owners set up a howl of protest but there was nothing they could do about the matter. The emergency price control act empowers the administrator to regulate rents for apartments, homes, hotels, rooming and boarding houses, tourist camps and even trailers in designated defense areas. San Diegans declared last month that those chiefly at fault were many easterners who had moved in and acquired apartments, hotels and restaurants, and were charging all the traffic would bear.

Your Radio Set

Better take good care of your radio receiving set. WPB has ordered that after April 22 there will be no more sets made for civilian use. Production of communication equipment needed by military services will exceed \$125,000,000 per month, WPB estimates. Program calls for the expenditure of two billion dollars for this equipment. This should offer an opportunity for many small manufacturers, being squeezed out of civilian production, to make parts as obviously the radio industry is not geared to this huge production and time is of the essence.

Previously civilian sets were made by 55 producers ranging from companies with complete equipment capable of converting raw materials into sets to those

• "Rube Goldberg" didn't have a hand in this one. It's a complete fuel system of one of Vultee Aircraft fighting planes. The fuel system is brought into the open and put through pressures which would be encountered at various altitudes during actual flight. Much flight testing is eliminated.



that assembled parts. There are 250 parts makers—1,000 firms that made gadgets such as switches, screws, etc. Needed now are shock-proof receiving sets, aircraft locators, altitude finders, direction indicators and the like.

Glass Containers

Glass is being cast to fill one of the biggest jobs of the war. Millions of jars, bottles and glasses will have to do the job for our civilian canning needs as tin which used to do the bulk of food preserving will soon be unavailable.

To facilitate the switchover, the WPB officials are now working on a program for increased glass container production. There is no glass shortage now to hamper producers in their efforts to get the jars and bottles rolling off the production machines. But there is a shortage of time and machinery that is a problem for an industry which is now working on a three-shift basis.

One expected change is to larger containers. A half-gallon of milk when delivered in half-pints, takes 64 ounces of glass. If delivery is in pints, only 52 ounces of glass are needed; quart bottles for the same amount of milk weigh only $35\frac{1}{2}$ ounces. A single container for the half-gallon takes only half the amount of glass needed for the half-pint bottles handling an equal volume.

New weight requirements will force some manufacturers to abandon many fancy bottle designs.

New Design Pump

Revolutionary in design is a new oil well pump engineered to supplant the familiar, time-honored "walking beam" pump in



use for more than three-quarters of a century. This was demonstrated last week by Charles T. Gilliam, Los Angeles industrial engineer, before engineering staffs of major and independent oil companies. The inventor, B. B. Schmidt, experimental and designing engineer, is credited with many patents.

Utilization of a submersible electric motor, connected with a high-pressure pump operating in a sealed lubricating oil median, and timed with the U tube mercury columns working in a silver plated barrel, causes the mercury to act as reciprocating pistons and force the crude oil to the surface in a constant steady stream, according to the inventor's claims.

Allocate Woodpulp

Seeking to conserve supplies and direct distribution, WPB last month placed the entire wood-pulp industry under an allocation system to be effective May 1. Under the system, no deliveries of wood pulp may be made except by the specific authority of the director of Industry Operations,

WPB. The order requires pulp consumers beginning this month to file with the producer by the fifth of each month their orders for the following month on forms furnished by WPB.

Critical Metals

Here are the materials that are critically essential for the prosecution of the war and for which substitutes must be found for goods going to civilian use, listed by the War Production Board:

Alloy steel—iron alloys, alloy steel and wrought iron, aluminum and aluminum scrap, cadmium, calcium-silicon, chromium, iridium, lead, magnesium, nickel, tin, tinplate and ternplate and tungsten.



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WESTERNERS AT WORK



TOM WOLFE
Western Air V. P.

TOM WOLFE, youthful veteran of the air transportation industry and vice president in charge of traffic for Western Air Lines at Los Angeles, is probably the last person in the world one would expect to be interested in gliders. Promotion of the art of gliding with sailplanes is something of an obsession with him and his greatest interest outside of guiding commercial air traffic is the development of a gliding program for the youth of this country. Such a training program was practiced in Germany, he likes to point out,

and with startling results shown in the war during the battle for Crete.

A private pilot in his own right, Wolfe is practical. At the age of 40 he has a 17-year record within the airline industry. As far back as 1930, Tom Wolfe was interested in gliders when he constructed and flew his own sailplanes, and then opened a factory to produce this model. He is now a director of Bowlus Sailplanes, Inc. which commercially is producing gliders in the San Fernando valley near Burbank, Calif.

In addition to aviation, Wolfe has earned the title among his associates of the Flying Rancher. Flying trips from Los Angeles to Medicine Bow, Wyo. enable him to keep a guiding hand over his 100,000-acre ranch there where he maintains 11,000 head of sheep and cattle.

Priorities Head

ASSUMING one of the most important government jobs here on the Pacific coast which will bring him in daily contact with practically all classes of business, James A. Folger, former president of the Folger Coffee Co. last month accepted the job of Priorities district manager of WPB at San Francisco. Folger, widely known Bay area business executive, replaces Andrew L. Kerr who resigned to re-enter private business. Prior to accepting the new job, he went into a course of training at the government school for executives at Washington, D.C.

Folger is easy to meet and has a vast background of business experience which



JIMMIE FOLGER
Takes Government Job

will stand him in good stead in ironing out the daily problems in connection with priorities. Typical of the man, it is recalled that when he took over the job as head of the Folger Coffee Co. back in 1937, he insisted that his associates drop the mister and call him "Jimmie." From 1931 to 1937, he was a director of the San Francisco Chamber of Commerce, and was chairman of the chamber's foreign trade committee in 1935-36. He has been for several years a director of the Remedial Loan Association of San Francisco and of the Wells Fargo Bank & Union Trust Co.

Third Generation

ARTUR STEWART, Union Oil Co.'s vice president and sales manager, is of the third generation of the Stewart family to be associated with this Pacific coast company.

Son of the late William Lyman Stewart and brother of W. L. Stewart, Jr., vice president in charge of manufacturing, Arthur Stewart was educated in the Pasadena city schools and Stanford University. He topped off his scholastic career at the Harvard School of Business Administration.

Starting in early to get a first hand knowledge of the company's operations, during his college summer vacations Art Stewart did everything from working in the field as a roustabout to going to sea as a wiper in the "black gang."

Upon his graduation from Harvard, Stewart became a full time Union Oil employee. He served his apprenticeship as a salesman in San Francisco. In 1931, he became manager of specialty sales. Prior to

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ARTHUR STEWART
Watches Union Oil Sales

being appointed a vice president of the organization, he served successively as southern division sales manager, manager of Union Service Stations, and assistant vice president and sales manager.

Canners Re-elect

Due to the national emergency, members of the board of directors of the **Canners League of California**, whose terms had expired, were unanimously re-elected at the Del Monte convention last month. Re-elected members included E. E. Chase Jr. of Chevy Chase Co.; W. A. Gellersen, Libby McNeill & Libby; J. A. Owen, Pratt-Low Preserving Co.; R. L. Pratt, California Packing Corp.; E. N. Richmond, Richmond-Chase Co.; Emil Rutz, Schuckl & Co., Inc., and M. E. Wangenheim, California Conserving Co., Inc.

Approximately 250 members of the Canners League were in attendance at the "War Council" at Del Monte, which replaced the regular 38th annual convention of the association.

Fifty Years Service

Fifty years of service in the petroleum industry were completed last month as **J. C. Axelson**, president and general manager of the Axelson Manufacturing Co. of Los Angeles, celebrated its golden anniversary. As pioneers of a number of design improvements in pumps, sucker rods and other requisites of the petroleum industry, Axelson has been one of the leading suppliers to the California oil producers. In addition, the two plants located in Los Angeles and St. Louis, Mo., ship parts and equipment to every producing country throughout the world.

AFTER twelve years of keeping his feet on the ground, O. W. Tupper returned recently to the aircraft industry, accepting a position as administrative assistant to P. G. Johnson, president of **Boeing Airplane Co.** with headquarters in Seattle. Tupper is no newcomer to the Boeing organization, for he was a director of the company from 1924 to 1929. At the same time he also served as secretary and director of United Aircraft.



O. W. TUPPER
Returns to Boeing

Tupper's start in the business world came in banking. A University of Minnesota man, he entered the banking field at the age of 19. After serving in World War I, he settled at Seattle and in five years with the Union National Bank worked his way up from clerk to vice president.



CARL J. NARDON
Makes Airplane Parts

ALMOST 75 per cent of all aircraft produced is equipped with one or more parts made by his organization, is claimed for **Carl J. Nardon**, vice president of the Poulsen & Nardon Tool & Die Works of Los Angeles. In 1922, he and George Poulsen formed the organization bearing their names which today is one of the largest manufacturers of automatic screw machines and stamp parts on the Pacific coast. The new 91,000 square foot plant in southern California is entirely devoted to defense production.

Carl Nardon is vice president of the firm—but if a person expects to find him quietly seated behind a big desk, they are mistaken. With his sleeves rolled up, he almost is constantly in one part of the plant or another—counseling with various of the 500 employees.



LINDA VISTA

The McNeil \$15,000,000 San Diego housing project (3068 units), financed by Security, is another instance of this Bank's efficiency and dispatch in the handling of emergency wartime requests for working capital. More than ever today, "Security stands for speed."

WAR LOAN DEPARTMENT

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CANNERS

VIEWING the important role played by the industry in supplying food-stuffs for our armed forces, our allies and at the same time take care of our civilian requirements, the annual two-day trade session of the Canners League of California, held at Del Monte starting March 6, was in some respects a war council. Convention ballyhoo was lacking and canners quickly got down to the business of discussing industry problems.

Most important problem was that brought about by the recent proclamation to exclude Japanese from Pacific coastal areas and the effect on California agriculture, particularly canning crops. Can-

ners operators are faced with an acute labor shortage. Japanese up and down the Pacific coast have controlled a good segment of the growing of crops for canning and supplying fresh vegetables. A case in point: when the war started and Jap nationals were automatically put out of business, Los Angeles for a day or two *almost* had to go without fresh vegetables.

Canners now are most concerned with the tomato crop, largely in the hands of Japanese. This by reason of the fact that growing is about to start and the Japs hold many fat contracts with the canners. Canners were told by Dave Davidson, chairman of the agricultural section of the State Council of Defense that state and federal agencies were cognizant of their problems and were working on some solu-



EARL NEEL, President
Cal. Processors-Growers

tion. Aside from tomatoes, many other crops are involved where production contracts are held with Japs.

Later this month came more reassuring news for the canners. The Federal Reserve Bank will act as custodian for Jap properties. Japs can make their own arrangements with other interests to complete growing of the crops and fulfill canning contracts. It is a penal offense to harm growing crops. All in all, it is a complicated situation; not as bad as it looked at first and no doubt will be worked out so that the canners will get their fruit and vegetable supplies.

With the United States Army as the largest customer, the canning industry gave full attention to the talk given by J. Howard Hamilton, civilian adviser to the Subsistence Division of the United States armed forces, who said that it was the desire of the government to buy top quality food for the military arms. He said that the quantity of any particular commodity to be purchased would be influenced largely by price. He warned that if prices for any given commodity became too high, purchases would be drastically reduced or eliminated entirely. M. A. Clevenger, representing the government agencies, AAA and FSCC, asserted that the millionth ton of food had recently reached Britain under the Lend-Lease program. Under Lend-Lease requirements, California last year supplied \$45 million of food.

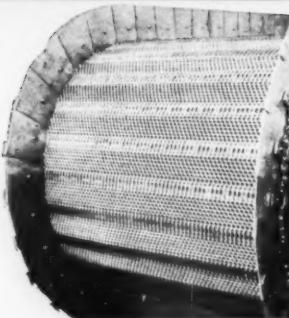
Coincident with the discussion of industry problems last month at Del Monte, came a well-authenticated industry survey indicating that northern and central California cannery operators are faced with a labor shortage ranging from 20 to 45 per cent in the principal canning packs during the 1942 season. The figures were presented by the California Processors & Growers, Inc. in a survey of more than 60,000 workers employed in California.

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The basket shown is one of the many Cambridge alloy designs used for continuous conveying of large shell casings through annealing furnaces at temperatures approximating 1200 degrees Fahrenheit. This same basket is also subjected to quenching, pickling and washing operations.



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VIEWPOINT

Readers are invited to give their views and exchange ideas through the medium of the editorial columns of Western Industry. Additional information relating to subjects of articles can be obtained by writing the Editor, using business letterhead if feasible.

Dear Sir: As far as we know at the present time, no one on the West Coast is producing lignin from wood. In the sulphite process of manufacturing wood pulp, the lignin is dissolved out of the wood by the sulphite acid liquor. However, it is in a water soluble form and so far has not proven to be of any value as a raw material.

In the Kraft process, the lignin is dissolved from the wood by means of alkali and the dissolved lignin is subsequently evaporated and burned to recover the chemicals used in the process. At the same time, steam and power are generated from the burning process. There is, therefore, no lignin available from the alkaline cooking process. The Mead Pulp & Paper Co. of Chillicothe, Ohio, did, for a time, produce a certain amount of so-called alkali lignin which was used, experimentally at least, for the production of plastic materials. To the best of our knowledge, this is the only organization which has produced a lignin suitable as a raw material for further processing.—R. S. Hatch, Director of Research, Weyerhaeuser Timber Co., Longview, Wash.

Mr. Hatch's letter on the possibilities of production of lignin from Pacific coast wood pulp is in response to several requests received from readers for whatever information was available on the subject here. Arnold Kruckman, Western Industry Washington editor, February issue, referred to lignin, by-product of wood pulp and 100 per priority proof as a possible substitute for other materials going into the manufacture of radios, in leather goods, automobiles, electric light switches, telephones, combs, inkstands and even flavoring matter for cake and ice cream.—Editor.

Dear Sir: Thank you for your letter of March 4 which was forwarded to me through Mr. Mousheng Lin of the Chinese News Service in New York City a few days ago, and for the interest you took in publishing my article on "The Prospects for Industrialization in China" in three parts in your esteemed journal. However, your ingenious editing has given the article a new dressing; personally, I am most grateful for your keen interest in matters relating to my country. So, be assured of my sincere appreciation, and of my hope

that I may be of further service to your journal in the near future.—H. D. Fong, Ph.D., Professor and Research Director, Nankai Institute of Economics, Nankai University, Chungking, China.

(See Western Industry, March.) Large supplies of raw material are indicated as available in this area. Perlite is a volcanic glass and when exfoliated, it is claimed will expand 10 to 20 times its original size. Its insulation value is apparently very high.—Editor.

Dear Sir: I was interested in the note on Perlite in your current issue on page 29. I was a little surprised that there was no reference to Lee Boyer of Superior, Arizona, who, I believe, discovered its qualities and devised the means of expanding it commercially.—W. C. Broadgate, Chairman, Yavapai County Council, ASMOA, Prescott, Ariz.

Claimed as the first perlite plant in the world, a new unit to produce insulating material is planned for Las Vegas, Nev.

Tin Stocks Frozen

We have plenty of gold and silver for jewelry but no tin. WPA last month froze all tin and tin-bearing materials in the hands of manufacturing jewelers. They are prohibited from melting, fabricating, assembling or in any way changing the form of tin in their possession. It is estimated that there are about one million pounds of tin in the hands of manufacturing jewelers.

NEW CAMOUFLAGE FACTS

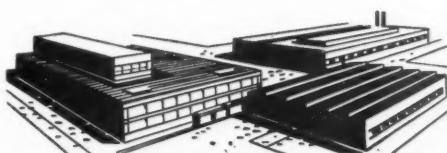
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YOUR QUESTIONS ANSWERED

- Q. Does the War Dept. encourage camouflaging at this time?
A. Yes. Proper camouflage is recommended for both buildings and landmarks.
- Q. Does the War Dept. direct each factory camouflage application?
A. No, except in some instances—aircraft, munitions, etc.
- Q. Are elementary camouflaging methods now developed for immediate use?
A. Yes. Numerous jobs are actually under way.
- Q. Where can qualified advice be obtained on design, specification and application of camouflage?
A. Write or telephone us. We can put you in touch with competent engineers and authorized camouflage.

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PREMIER

CAMOUFLAGE PAINTS

R U B B E R

Japan has seized the sources from which came 97 per cent of the crude rubber this nation has been consuming.

By December 31, 1943, at least 45 per cent of the nation's passenger cars must be laid up for lack of rubber. To put it another way—by December 1943, all non-essential automobile uses, accounting for 45 per cent of the total passenger car mileage, must stop for the duration. These conclusions are reached by Dr. V. O. Watts, economic counsel for the Los Angeles Chamber of Commerce who has just completed a survey of available rubber supplies and needs for military uses.

All this poses particular problems for many Pacific Coast communities which are spread out and which grew to their present stature with the automobile era. The Los Angeles area is an extreme case and poses a knotty problem if people are to continue to get to work.

Let us look at the situation in Los Angeles. Residents are dispersed five times as widely as those of Philadelphia; six times as widely as those of Chicago and eight times as widely as the residents of New York City.

Passenger miles traveled in the Los Angeles metropolitan area in private automobiles account for 80 per cent of the total. About 55 per cent of the passengers coming to the downtown area come by



• America's newest "rubber plantations." Storage tanks containing Butadiene, basic ingredient for synthetic rubber, "somewhere in the United States." This "tank plantation" is used by the B. F. Goodrich Co. in the production of tires.

auto; 70 per cent of industrial workers depend on autos to get them to work. A survey by a large southern California aircraft plant recently indicated that 90 per cent of its workers used private automobile transportation. All this presents a problem of huge and serious proportions affecting the worker, industrial plants and retail trade.

The Watts survey maintains: that until January 1, 1944, stocks of crude rubber on hand in this country together with all that can be imported and produced, will amount to about 1,100,000 tons. This would take care of our peace-time needs for two years, if none were needed for war purposes.

But—military needs alone in 1942 and 1943 will take 800,000 tons. This figure represents only 75 per cent of what the military hoped to get. One 30-ton tank, for example, requires rubber enough for 87 tires. Class A trucks—essential for war industry—have been allocated 132,000 tons for tires this year and next. Nothing is allocated for class B trucks, those not essential to war production.

Essential industries will need every pound of rubber they can get for belting, forming dies and thousands of other uses. *Not one ton of crude will be left over to make tires for passenger automobiles.* Here is the picture on supplies of crude rubber for 1942-43, drawn by Dr. Watts; stocks on hand 700,000 tons. Add imports from Latin America 40,000 tons, Africa 40,000 tons and Ceylon 80,000 tons. Add domestic supplies; guayule 1,000 tons and synthetic rubber 200,000 tons. Total indicated supply—1,061,000 tons.

The estimate for 200,000 tons of synthetic rubber to be produced here is probably on the optimistic side. Reports of large amounts of natural crude obtainable

in South America are out. It takes from seven to 10 years to bring rubber trees to the productive state there. In the past Brazilian rubber boom, output soared to 50,000 tons, then dwindled. What is available now is wild and hard to get. Guayule rubber in California has a four-year growing period. Government optimists shorten this. Most optimistic estimate is for 50,000 tons here by 1945.

CALENDAR OF EVENTS

- April 10-11—CALIFORNIA COUNCIL OF EDUCATION, State conference at Palace Hotel in San Francisco.
- April 10—CALIFORNIA-ARIZONA COTTON ASSN., Regional convention in Los Angeles.
- April 13-17—ASSOCIATION OF WESTERN HOSPITALS, Regional conference at Olympic Hotel in Seattle, Wash.
- April 18-19—CALIFORNIA EXECUTIVES OF PUBLIC WELFARE, State Convention in Oakland, Calif.
- April 20-22—NATIONAL RESTAURANT ASSOCIATION, Regional conference at Biltmore Hotel in Los Angeles.
- April 28-May 3—CALIFORNIA SPRING GARDEN SHOW in Oakland, Calif.
- April—PACIFIC NORTHWEST STATIONERS, Regional conference in Portland, Ore.
- April—NATIONAL STATIONERS ASSN. OF SO. CALIFORNIA, Los Angeles.
- April—UTAH LEAGUE OF BUILDING & LOAN ASSOCIATION, Utah Hotel in Salt Lake City, Utah.
- May 19-20—NATIONAL METAL TRADES ASSOCIATION, The Biltmore Hotel in New York City.

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AUTO SCRAP

PLANS for salvaging scrap iron and steel from more than 250,000 jalopies in western auto graveyards were completed last month following an industry-wide organizational meeting held in San Francisco.

Nearly 100 steel company executives and scrap dealers heard the far-flung program outlined to them at the Palace hotel by W. F. Breuer, regional representative of the Bureau of Industrial Conservation of the W.P.B.

Scores of automobile "graveyards" up and down the Pacific coast similar to this one (TOP PICTURE) will be attacked and worn out cars stripped of usable parts. Nonferrous materials are burned out and the steel chassis and bodies are sent on to scrap iron and steel dealers. Such yards as these will supply tons of scrap iron, steel and old rubber, all of which can be used to alleviate shortage of defense materials.

It won't be an automobile body for long. Here it is being placed in a powerful hydraulic baling press (MIDDLE PICTURE) soon to emerge as a small ingot of tightly compressed scrap metal. The steel is bundled in this method not alone to facilitate shipment but to prevent burning of the sheet metal when exposed to the terrific heat in an open-hearth furnace.

Back into production go these carloads of scrap metal (BOTTOM PICTURE). The overhead magnet deposits the scrap in a loader which carries it to the open-hearth furnace. About 50 per cent scrap steel is used in open hearth production. Pictures courtesy Office of Emergency Management.



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President

Los Angeles Chamber of Commerce

SPEED is the paramount essential of our war production. War is a race to make things, and to win this race America must let nothing interfere with the utmost possible speed. In view of this, talk of moving Pacific coast defense industries to "safer" inland havens is simply absurd. The Pacific Coast probably produces about



half of America's aircraft. Who in his right mind, outside of an Axis agent, would propose to close up these humming mills of war production while the time and the materials and the energy were expended to rebuild such plants in the midlands while the Axis runs rampant?

If the Pacific Coast were bombed tomorrow and every day for three months, it would still be imperative for us to continue the operation of these plants to turn out the eagles of America's war effort. We must remember that England, only 22 miles from Adolph Hitler's mighty Luftwaffe, dropped only 10 per cent in war production during the worst German air raids.

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FEDERAL DEFENSE AGENCIES

For quick reference, below are listed principal defense agency offices established in the western states which are open for consultation with business and industry:

War Production Board Division of Industrial Operations (Priorities)—OPM

SAN FRANCISCO: James A. Folger, district manager; Gilbert Kneiss, assistant, 1355 Market St.

LOS ANGELES: Phillip McCullough, acting district manager, 1031 So. Broadway.

SEATTLE: William D. Shannon, district manager, Stuart Building.

PORLAND: J. Fred Bergesch, district manager, Bedell Building.

Production Division Contract Distribution Branch

SAN FRANCISCO: Colonel F. M. Smith, state director; E. F. Holloman, assistant, 1355 Market St.

LOS ANGELES: G. Howard Hutchins, district manager, Western Pacific Building, 1031 So. Broadway.

SEATTLE: Harry J. Martin, state director, 3314 White Building.

SPOKANE: T. Wilber Weger, district manager, Old National Bank Building.

PORLAND: John G. Barnett, state director, 815 Bedell Building.

FRESNO: C. E. Bourne, district manager, Mattei Building.

OAKLAND: W. P. Collins, district manager, Financial Center Building.

SACRAMENTO: Orlando McCraney, acting district manager, Farmers and Mechanics Building.

SAN DIEGO: Paul C. Farmer, acting district manager, Union Building.

PHOENIX: Fred F. Schalmo, acting manager, 406 Security Building.

BOISE: H. W. Bogie, acting manager, 409 Capital Securities Building.

RENO: E. S. Bender, acting state director, Saviors Building.

Division of Information—OEM

SAN FRANCISCO: Dean S. Jennings, regional information officer; Harry E. Flanagan, assistant, 1355 Market Street

LOS ANGELES: H. R. Washburne, branch manager, 1031 South Broadway.

SEATTLE: Howard MacGowan, branch manager, White-Henry-Stuart Building.

Administrative Service—OEM

SAN FRANCISCO: Ralph B. Thompson, regional administrative officer; L. F. Gentner, regional service operations officer; R. W. Scott, regional fiscal officer; Boynton S. Kaiser, regional personnel officer, 1355 Market St.

LOS ANGELES: Philip F. Bauman, administrative service officer, 1031 So. Broadway.

SEATTLE: Frank W. Burr, administrative service officer, White-Henry-Stuart Building.

PORLAND: Donald Parker, administrative service officer, Bedell Building.

Division of Defense Housing Coordination—OEM

SAN FRANCISCO: O. W. Campbell, associate regional coordinator; James Whiteside, housing priorities examiner; Raymond Brummet, field adviser, Homes Registration office, 1355 Market Street.

LOS ANGELES: Kelvin Vanderlip, housing priorities, 1031 So. Broadway.

SEATTLE: Louis Scarbrough, assistant regional coordinator, Room 908, White Building.

Division of Training-Within- Industry

SAN FRANCISCO: Alexander Heron, district representative, 260 California Street.

LOS ANGELES: William K. Hopkins, district representative, Roosevelt Building.

SEATTLE: General H. G. Winsor, district representative, Stuart Building.

PORLAND: Laurin E. Hinman, representative, Public Service Building.

Office of Civilian Defense—OEM Ninth Corps Area

SAN FRANCISCO: Jack H. Helms, acting regional director, 1355 Market Street.

Division of Health and Wel- fare Services—OEM

SAN FRANCISCO: Richard Neustadt, coordinator, 785 Market Street.

Division of Labor

SAN FRANCISCO: James G. Bryant, chairman of the Regional Labor Supply Committee; George W. Davis, executive officer of Northern California Industrial Area Committee; Lee R. Smith, regional labor representative, Labor Supply Committee, Humboldt Bank Building, 785 Market Street.

LOS ANGELES: H. R. Harnish, executive officer of Southern California Industrial Area Committee, 1100 So. Flower Street.

WASHINGTON AND OREGON: James E. Carroll, executive officer of the Industrial Area Committee, Oregon State Employment Department, 202 Old Post Office, Portland, Ore.

LABOR—FROM LEFT TO RIGHT

FOLLOWING the national pattern set in labor affairs, the Pacific coast area last month was singularly free of actual strikes. This, of course, was to be expected, particularly in view of the fact that President Roosevelt, on February 28, had officially launched his war production drive, and had directed that labor must take an active part in plant affairs to see that the defense program went on without interruption.

Discussions, arguments and demands for increased wages went on apace in the Pacific coast area with the San Francisco sector continuing to show the greatest activity in this respect.

No doubt the most far-reaching development in labor circles affecting not only Pacific coast plants, but those of the nation, was the letter which went out late in March to more than 2,000 plants holding prime contracts. Here, Donald M. Nelson, WPB head, ordering a production speed-up, informed plant operators that "a government official had been instructed to call together proper representatives of labor and management in your plant to establish a joint committee to direct the production drive." (see page 7)

More important, Mr. Nelson said that this government official had instructions "to make sure this joint committee truly represents both management and labor . . . that this committee's function be made permanent for the duration of the war. He has been instructed further to see that in those plants or departments where the worker belongs to a labor organization, the union representatives will constitute the labor half of the joint committee. He is then to report to the production drive headquarters the names of the chairman and members of the committee. The government official will not be a member of the committee."

All this, of course, is one of the most drastic steps which has ever been taken in governmental direction of management-labor policy. It was indicated that the full import of these directions had not yet been realized by many plant operators. Others were waiting to see just how such a management-labor program would work out. Many were unenthusiastic, hoped for

the best, but had no alternative but to follow Mr. Nelson's direction.

While last month's directions as to management-labor coordination were sent to holders of prime contracts, it was made clear that it would later extend to sub-contracting plants and eventually would include every war factory and every war worker in the country. Held under WPB auspices, labor took an important part in the discussion in production drive meetings held the last week in March in such Pacific coast cities as Los Angeles, San Francisco, Portland and Seattle. Similar meetings were held in other sections of the country.

At San Francisco

At San Francisco, it was disclosed by an independent survey that 18 unions representing all trades from butchers to casket workers, at the month-end, were making wage demands for increases from 7½ per cent to 110 per cent over present scales on 395 local firms. Two unions demanded a 40-hour week in place of a 48-hour week.

All of these disputes are under negotiation by the San Francisco Employers Council acting for employers which released the survey. Out of the 27 controversies which are now on the Council's agenda, eight involve demands for a closed shop; 13 call for preferential hiring and the union shop; four for preferential hiring alone. All of the unions ask higher wages.

San Francisco labor quarters, commenting on the survey, maintained that the trend of union demands in this city at this time is no different from those in other parts of the country. They cited the large number of cases now before the War Labor Board at Washington. They referred to present wage negotiations between General Motors and the CIO United Automobile Workers union. They also cited the "little steel" case. In these latter instances, wage boosts of \$1 per day are being asked.

Hot Cargo Law

Some fireworks on the Hot Cargo controversy developed last month. At Modesto, Calif., the Stanislaus county Superior Court in late March heard arguments on the attack made upon the local anti-Hot Cargo

ordinance which was passed by the City Council some months ago. The case arose out of injunction sought by the County Central Labor Council against enforcement of the city and county ordinances.

Labor's fight against the California Hot Cargo law is developing fast. This law, which was passed by the June 1941 session of the legislature and scheduled to become effective last September, is inoperative pending a referendum at next November's elections.

Sponsored by the California State Federation of Labor, several meetings were held throughout the State last month to plan a drive against any chance that the Hot Cargo law could be made effective as a result of the coming elections. Other meetings are scheduled for coming months. Bill No. 877, passed by the legislature, but now inoperative, prohibits Hot Cargo practices and the use of secondary boycotts both by employers and labor organizations to last until May, 1943, or for the duration.

More Eye Trouble

Important not only to operators of large plants in California, but in other sections of the Pacific coast was the decision handed down late last month by the State Industrial Accident Commission when it awarded weekly benefit payments to a large number of men which were represented by the California State Federation of Labor. It seems that approximately 400 employes of the Bethlehem Steel Co., shipbuilding division, at South San Francisco, for a time had been suffering from what now is defined as conjunctivitis. The issue which came before the Accident Commission was as to whether this epidemic in the shipyards was an occupational disease, due to unsanitary working conditions and as such, would enable the workers to secure compensation. The company had contended that it was a non-occupational disease. The Accident Commission ruled favorably for the workers, maintaining that the disease is a compensable injury under the California Workmen's Compensation act, and that workers must be provided adequate medical treatment and be paid weekly indemnity for the time disabled.

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GROWING PAINS

LIGHT METALS

GREATER utilization of the hydroelectric power facilities of the west was indicated officially when a vast expansion program to increase the nation's aluminum and magnesium production facilities was outlined last month from Washington by William L. Batt, WPB director of Materials. The program would assure enough of these materials to produce 60,000 planes this year and 125,000 in 1943, Batt asserted.

While the scope of the plan is outlined, no specific mention is made so far of the areas which will share in this huge development program nor are specific plant sites divulged though it is indicated some have already been selected. The western area will play the major role both in further development of power and metal production facilities.

The initial expansion program, starting from a pre-war rate of 330,000,000 pounds in 1939 will get into swing next month and by the end of 1942 we should be producing 1,450,000,000 pounds annually. This will be augmented by indicated imports of 250,000,000 pounds a year from Canada. We produced 615,000,000 pounds of primary aluminum last year and this year should produce 800,000,000 pounds. The present expansion program should add facilities for output of an additional 640,000,000 pounds.

Summarized: existing facilities with the initial expansion program ordered some months ago, by the end of this year should give us production facilities for 1,450,000,000 pounds annually. Add to this the present expansion calling for production of 640,000,000 pounds with anticipated Canadian imports of 480,000,000 pounds which will give a production rate of 2,580,000,000 pounds when the program is completed in 1943. This compares with

actual production here of 330,000,000 pounds in 1939.

Magnesium, light metal twin of aluminum, is now scheduled to reach a capacity for 400,000,000 pounds a year either through plants now in operation or plants now under construction. Under the increased program, output will be increased to 725,000,000 pounds annually. In 1941, we produced 33,000,000 pounds.

In addition to actual production of aluminum, processing, fabricating and extrusion plants are a part of the huge plan for expansion of output. The lion's share of these projects will come to the western area.

Development Plan

Acting quickly on suggestions of Secretary of the Interior Harold L. Ickes for development of mineral, water-power and raw material in the western states, Senator Joseph C. O'Mahoney (D., Wyo.) last month introduced in the Senate a bill authorizing such a program. The bill generally follows Ickes' late-February report which recommended a vast program for development and production of strategic metals to be augmented by a huge governmental water-power program dwarfing anything hitherto dreamed. Seeking further power, Secretary Ickes also proposed that recommendations of the Interior department for metal production plants would make it mandatory for the Defense Plant Corp. to finance these projects.

Part of the Ickes plan is the development of ten new power sites on the Columbia river and at other northwest points to provide an additional 3,500,000 KW of generating capacity at a cost of around \$500,000,000. Specific recommendations as to how this huge increase in power output could be utilized were lacking.

Hetch Hetchy

The troublesome Hetch Hetchy power problem of many years has been settled—at least for the duration. Last month came word that the energy generated by the city-owned plant on government property would be utilized by a large aluminum plant, government financed, to be constructed at either Modesto or Riverbank, Calif. adjacent to the power plant. The authorization said specifically that the plant must be located somewhere "in the central California valley."

Output of the Hetch Hetchy plant is being sold to Pacific Gas & Electric Co. netting the city \$2,400,000 annually. The United States Supreme Court had ruled that this sale was illegal. Secretary of the

Interior Harold L. Ickes has been opposed to the arrangement. A proposal to have San Francisco purchase the P. G. & E. owned city distributing facilities and go into the retailing business was defeated last fall, when voters turned down a proposal to issue the necessary bonds.

Alaskan Road OKed

Construction of the Alaskan highway which would link this country through Canada with northern points may at last become a reality. Last month came word that the Canadian government had given its approval, denying at the same time reports that it earlier had given no cooperation to the plan. Earlier reports were that Canada had balked at meeting its share of the expenditure.

New Shipyard

Construction of a major shipyard at Sausalito, Calif., was announced recently by the Maritime Commission. The W. A. Bechtel Co. of San Francisco has been awarded a contract for construction of 34 emergency cargo ships. The company will build a six-way shipyard at Sausalito.

The yard will be located at Pine Point in the north end of Sausalito, it was reported, and it will be the first major industry in this area.

Santa Barbara Airport

Santa Barbara's municipal airport may be taken over by the Navy according to Congressman Alfred J. Elliott (D., Calif.) who made the announcement on the basis of information received from unidentified navy officials.

Originally, the navy had planned to build a \$7,000,000 airport somewhere near the channel coast. Further indication of the scope of the navy's plans for the Santa Barbara airport project was given here with the report that navy representatives now are negotiating for the leasing of still more land in the vicinity of the present airport site.

Northwest Power

Signing of a new power contract between the Bonneville Power administration and the Defense Plant Corporation was announced in March by Dr. Paul J. Raver, Bonneville administrator. New contract calls for 97,500 kilowatts of energy to be furnished to the new aluminum plant. The agreement is the first of a series of similar contracts expected to be signed between the power authority and the corporation for the new defense operations in the Pacific northwest.

WIRE ROPE

Wire Rope—Manila Rope—Tackle Blocks
Sheaves—Chain and Coffing Hoists
Shackles—Turnbuckles—Splicing
V-Belt and Roller Chain Drives
Alemite Guns—Plumb Tools
Feige Electroline Wire Rope Fittings
Safe-Line Clamps—Safety Clips
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Southland Steel Unit?

Reported but lacking official confirmation is a \$50,000,000 steel mill employing thousands of workers to be established in the San Bernardino Valley, according to an announcement made by Congressman Harry R. Sheppard (D., Calif.) who represents that district. The plant, expected to be operated by the Henry J. Kaiser interests of San Francisco, will use iron ore from the desert regions of the Southland and will have a production capacity of 450,000 tons of pig iron annually, it was stated.

Utah Site Selected

Selection of the Vineyard-Geneva site near Provo, Utah, for the \$126,000,000 steel plant project, was announced last month by William J. Hickey, plant expert for the Defense Plant Corp. The site, one of the three proposed in Utah county, takes in the tract south of the road leading from the Pleasant Grove-Vineyard road to Geneva, between the highway and the lake, as far south as the Rio Grande Railroad tracks. Columbia Steel will operate the plant.

According to Hickey, the plant will produce, when completed, steel armor plate for the Pacific coast shipbuilding yards. It is estimated that the plant with all its equipment will more than double the present assessed valuation of Utah county. The plant will have a rated capacity of 1,450,000 tons of pig iron, 840,000 tons of open hearth ingots and 500,000 tons of steel plates. The annual tonnage to be hauled into the plant will be around 6,000,000 tons.

Birthday

Wells Fargo Bank & Union Trust Co. of San Francisco, oldest bank surviving the colorful California gold rush period, last month celebrated its birthday. Just 90 years ago, on March 18, 1852, Henry Wells and William G. Fargo established the banking and express company bearing their names. The first office was on Montgomery Street between California and Sacramento streets. Wells, Fargo & Co. bank later joined two other California pioneer banks to form the present institution.

Buy Rail Equipment

Western railroads are planning for the greater tasks that lie ahead. Last month announced were plans for purchase or rebuilding of existing equipment: Southern Pacific Co. announced that it had ordered 42 steam locomotives and 30 diesel electric switches to cost \$12,000,000. Deliveries of equipment ordered by Southern Pacific last year should be completed by August. This includes 40 steam locomotives, 10 streamlined "Daylight" engines and 23 switchers.

Pacific Fruit Express, jointly operated by Southern Pacific and Union Pacific, last month announced that it would spend \$21,000,000 for new and rebuilt cars. Orders for 2,000 new cars are being placed and during 1942-43 the company will rebuild 2,500 cars to be provided with entirely new bodies of the latest approved type.

House Trailers

The beautiful California and Florida landscapes, home of the house trailer, will have many more of these in their backyards and fields as a result of the housing shortage. San Diego has probably more house trailers to the square mile than any other area. Trailers have provided the housing answer in such communities confronted with sudden concentration of defense workers. The production of house trailers will go into high gear this year with an expected output of 50,000 of these. Trailers are sold only to those workers in congested defense areas. A novel procedure has been worked out to conserve tires—as soon as a trailer has been delivered, the tires are removed and returned to the manufacturer. The trailer is propped up on blocks. What happens to the occupant if he wishes to move is not outlined by WPB.

Labor Ruling

Unions which pay benefits to their members will not have to incorporate, according to advices sent out to constituent members of the California State Federation of Labor. Judge John Sheldon of the State Superior Court, sitting at Los Angeles last month issued an injunction

restraining the State Insurance Commission from enforcing the disputed amendments to the insurance code embodied in A. B. 1400 of the last legislature.

THE REBER PLAN

Continued from page 17

mole would be constructed as a spillway, built to high-tide level on the fresh water side and to low-tide level on the salt water side. A reinforced concrete causeway here would provide right of way for highways and railroads at the north end to connect Richmond with Marin county.

To San Franciscans who realize they are practically in the front lines of war effort, Reber's plans for increased military and naval facilities should have definite appeal. Additional naval, air force and military facilities are provided. These include a naval base site, three large airports, submarine and destroyer bases. Underground facilities for gasoline and munitions storage as well as hangars for airplanes would be provided in an adjacent rock quarry site, the excavated rock to be used as fill for the project.

Reber is as proud as any San Franciscan of the two bridges, tributes to human ingenuity in spanning the vast reaches of the bay. Ask him what will happen to these bridges if his plan is consummated and he says this does not detract from the advantages claimed for his plan. The Golden Gate structure, he says, has its place in the development continuing to link San Francisco with Marin county and northern points. The San Francisco bay bridge has reached a traffic saturation point, he maintains, and something will have to be done about this eventually.

• Magnesium fires in defense plant machine shops, started by friction, are hardest of any to extinguish. Photo shows typical magnesium fire on lathe. Michael Farris of the Vega Aircraft fire department has invented a new extinguisher, claimed to put out a blaze in 30 seconds. Typical lathe fire is shown.



OPPORTUNITY SECTION—

Priorities regulations have made it practically impossible to secure new machinery for industrial operations unless a plant is doing 100 per cent work on war projects. Even then, long delays are in prospect. The government is urging full use of existing machinery. Listed below are "machinery opportunities" immediately available here on the Pacific Coast. Recently, used machine tools were made subject to priorities, but this does not apply to other classifications of machinery.

TRANSFORMERS

Used and Rebuilt Oil-Cooled Transformers in Stock

Single Phase, 50 or 60 Cycle 2200 to 110/220 Volts

- 3—1 K. V. A. Westinghouse
- 3—1½ K. V. A. Westinghouse
- 2—2 K. V. A. Westinghouse
- 4—3 K. V. A. Westinghouse
- 4—5 K. V. A. Westinghouse
- 3—7½ K. V. A. Westinghouse
- 3—10 K. V. A. General Electric
- 2—25 K. V. A. Westinghouse

Single Phase, 50 or 60 Cycle 2200 to 440/220 Volts

- 2—5 K. V. A. Westinghouse
- 3—7½ K. V. A. Westinghouse
- 1—15 K. V. A. Westinghouse
- 3—10 K. V. A. General Electric

Single Phase, 50 or 60 Cycle 440 to 220/110 Volts

- 4—1½ K. V. A. Westinghouse
- 8—3 K. V. A. Westinghouse
- 12—5 K. V. A. Westinghouse
- 4—7½ K. V. A. Westinghouse
- 3—10 K. V. A. Westinghouse
- 1—25 K. V. A. Westinghouse
- 1—37½ K. V. A. Kuhlman

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FOR SALE

- 1—30" throat, heavy duty, double end Punch & Shear, Motor-driven
- 1—18" H & J heavy duty Plate Planer
- 1—5/8" Rotary Shear
- 1—13" x 13" 3-drum Steam Hoist with 225 lb. Code Boiler
- 1—70-ton geared Locomotive, Standard Gauge
- 1—80-ton geared Locomotive, Standard Gauge
- 1—275 HP Leroy V-8 Gas Engine Unit
- 1—24"x20" American quick-change Lathe
- 1—150-ton Horizontal Wheel Press
- 1—90-ton Mikado Rod Locomotive, 200#
- 1—60-ton Consolidation Locomotive, 200#

SUNDFELT EQUIPMENT CO.

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SEATTLE, WASHINGTON

BARGAINS

Lidgerwood Cableway Hoist—200 H.P. Motor with Control, complete with 2100 feet 2½" Cable and all equipment.

10'x12' Clayton Compressor

18-H.P. Rego Gas Engine

8-ton Yale & Towne Chain Block

Crescent Combination Woodworker

30-H.P. 900 RPM G.E. Motor

150-H.P. 1200 RPM G.E. Motor

LARGE STOCKS

Wire Rope, Chain Blocks, Pipe and Fittings
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LOS ANGELES

ELECTRIC MOTORS

COMPLETE ELECTRIC MOTOR SERVICE

MOTOR GENERATOR SETS

- 1—75 KW 105 Volt 720 Amps, Compound 3 bearing G.E. with 150 HP motor
- 1—75 KW 125 Volt 600 Amps, Compound 4 bearing Westinghouse with 100 HP motor
- 1—30 KW 125-Volt 240 Amps, Compound 3 bearing Westinghouse with 45 HP motor
- 1—16 KW 230-Volt 64 Amps, Compound 4 bearing Westinghouse with 25 HP motor and complete battery charging panel
- 1—5.25 KW 125-Volt 45 Amps, 3 bearing shunt Westinghouse with 8.4 HP motor and complete battery charging panel
- 1—7 KW 230-Volt 30 Amp, Compound 4 bearing Westinghouse with 10 HP motor

ALTERNATOR

25 KVA 120-208 Volt 1800 RPM 3 phase 60 cycle 4 wire Westinghouse Alternator with direct connected KW Exciter, complete with rheostats.

LITTLEJOHN-REULAND CORPORATION

Rewinding 2655 Santa Fe Avenue Repairing
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MACHINERY SALE

MOTORS

- 1—260 H.P. Synchronous G.E. 225 RPM, 2200 volts, 210 KVA.
- 2—250 H.P. Westinghouse, Type CS, 290 RPM, 2200 volts.
- 1—200 H.P. G.E. Type I, 600 RPM, 440 volts.
- 1—200 H.P., G.E. 1800 RPM, 440 volt motor.
- 1—150 H.P. Westinghouse, Type CS, 1800 RPM, 440 volts.
- 1—150 H.P. Type B.F.M. 720 RPM, 440 volts.
- 1—150 H.P. Westinghouse, Type CS, 900 RPM, 2200 volts.
- 1—150 H.P. G.E. Type I, 720 RPM, 440 volts.
- 1—100 H.P., Slip Ring, G.E., 720 RPM, 440 volts.
- 1—75 H.P. Crocker Wheeler, 900 RPM, 440 volts.
- 1—62½-Ft. 25½-inch Double Leather Belt.
- 1—50 H.P. Westinghouse, 900 RPM, 440 volts.
- 1—50 H.P. Westinghouse, Type CS, 1800 RPM, 440 volts.
- 1—50 H.P. Vertical Fairbanks Morse, 1200 RPM, 220 volts, solid shaft.
- 1—35 H.P. Crocker Wheeler, 1200 RPM, 220 volts.

GENERATORS, BLOWERS, WATER PUMPS

- 1—1500 Watt, Direct Current, 110 volt, Kohler automatic light plant.
- 1—300 H.P. Triumph Water Wheel with governor, 50 ft. head.
- 1—200 K.W. Westinghouse A.C. Generator, 900 RPM, 440 volts, 3 phase.
- 1—No. 70 ILG Blower, 17,430 CFM, direct to 6 H.P. 340 RPM, 3 phase motor.
- 3—75 KVA Transformers, Wagner Type HE, 6600 to 220/440/ volts, 60 cycle.
- 2—75 KVA Transformers, G.E. Type H, 6600 to 120/240/480 volts, 60 cycle.
- 1—50 H.P. Single Drum Mine Hoist.
- 1—20-inch Krogh Split Case Pump, 11,000 GPM at 26-ft. head.

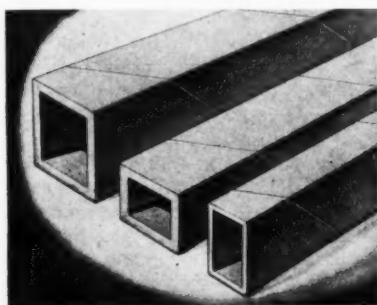
RELIABLE ELECTRIC WORKS

SACRAMENTO, CALIF.

THE SHOWCASE

For more complete information concerning any of the products listed in these columns, write to Western Industry, 503 Market Street, San Francisco, and we shall see that the material is forwarded to you. Descriptions of the products and claims made are those of the manufacturer.

• **PAPER TUBES**—Another improvement in tubes for electric coils is claimed by the Precision Paper Tube Co., manufacturers of dielectric paper tubes spirally wrapped, round, square or rectangular. This latest advance is effected by the use of a specially adapted heat die machine. Heavy compression insuring a new degree of strength and resistance to collapse, finer accuracy in sizing to specifications, superior dielectric properties, lower moisture absorption rate, space-saving on "light jobs," absolutely square corners and straight side walls are

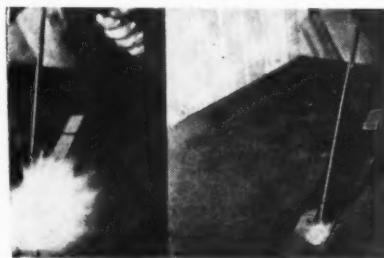


among the advantages claimed for tubes treated by this added process. The improved tubes are formed of dielectric kraft, or fish paper, or a combination of both. The paper is spirally wound on a steel die in an automatic machine. The tube is pushed pneumatically through the new heated compression die which effects an added compression of about 10 per cent and finishes the operation to its remarkable degrees of superiority.—Precision Paper Tube Co., 2033 W. Charleston St., Chicago, Ill.



• **STAMPING HOLDERS**—A steel stamp holding device has been developed primarily for safety in hammer struck stamp impressions on steel products. According to the manufacturer, better stamping is encouraged with this device because the

workmen need not fear bruised fingers caused by flying stamps struck by glancing blows. The stamp holder can be used for stamping round or flat products. The base of the holder is V-shaped, allowing a right angle alignment of stamp when stamping round products. One of the advantages of the holder is found in the fact that it cannot be used upside down.—Jas. H. Matthews & Co., 2942 Forbes St., Pittsburgh, Penn.



• **WELDING LENSES**—Warding off penetrating heat rays eliminating eye fatigue and affording coolness and full eye protection to the operator, are attained by use of this product, according to the manufacturer of Agile Metalklad Welding lenses. It is claimed that these lenses, compared with average lenses, permit 15 per cent more welding efficiency, 42 per cent greater visibility, and minimize glare. Illustrated is a welding arc as seen through No. 12 ordinary lens on the left, and as seen through No. 12 Metalklad lens on the right. American Agile Corp., 5806 Hough Ave., Cleveland, Ohio.



• **HYDRAULIC VALVES**—Strenuous and tiring valve-lever manipulation and a tendency toward "pressure-locking" have proved troublesome to users of hydraulic power at pressures of 1,000 pounds or more. A new type of high-pressure hydraulic operating valve has been introduced to alleviate these factors. Because the hydraulic pressure inside this new type valve is always balanced, it cannot become "pressure-locked." The lever can be easily operated from either "On" position or from "Neutral." As a result, this valve steps up the productivity of high-pressure hydraulic machinery and eliminates undue fatigue on the part of the operator even

when the valve is manipulated rapidly for hours at a time. There is only one moving part on this valve, and together with its simplified design, makes it practically wear-proof, thus eliminating almost all maintenance expense, according to the manufacturer.—Galland-Henning Mfg. Co., 2753-S. 31st Street, Milwaukee, Wisc.

• **PNEUMATIC FOOT PEDAL**—A recent study of operators using power presses in a large plant has revealed that an average day called for 10,000 trips of a 4-inch stroke mechanical pedal. The operator had a fatigue strain clear up through the hips to the shoulder from standing on one foot while the other travels 6,600 feet. This pneumatic foot pedal cuts this effort to a tip-toe 1 1/2" stroke without lifting the foot from the floor. In addition, the pedal can be operated with either foot. It is portable and permits various angles of approach. Installations of this type offer remote control and eliminate unnecessary steps and



waste motion. The manufacturer claims that operating machines pneumatically is the modern method of improving production. A Schrader's Son, 470 Vanderbilt Ave., Brooklyn, New York.

• **ACOUSTI-BOOTH**—To conserve steel for national defense, a new line of sound-

proof telephone booths, constructed of heavy reinforced birch plywood and specifically designed for industrial use, has been developed. The walls and ceiling consist of perforated, reinforced panels filled with a thick blanket of sound-absorbent material. The perforated acoustic panels absorb noise and create a "zone of quiet" in the booth. According to the manufacturer, noise is absorbed so completely by the lining of the booth that telephone calls can be made in the noisiest locations with-



out interference. Conversation within the booth in ordinary tones cannot be understood outside the booth, thus assuring privacy. Its open, doorless construction allows better ventilation. Burgess Battery Co., 530 W. Huron St., Chicago, Ill.

• **TURRET LATHE**—A new 16" swing turret lathe designed for rapid production on chucking operations and bar work was announced recently. The ram type turret has both power feed and hand feed, with automatic indexing and individual stop for each of the six turret faces. A quick change gear box provides 48 changes of



turret power feeds also 48 changes of both the cross and longitudinal feeds for the tool post carriage and a series of 48 screw threads, 4 to 224 per inch. South Bend Lathe Works, Dept. W2, 425 E. Madison St., South Bend, Ind.

• **SAFETY GLASS**—American chemical research has found an answer to the vital problem of flying glass caused by air raids, earthquakes or other violent vibrations. Recently developed, Roxaneal, a water-white, transparent liquid prevents broken glass from flying. It is not claimed to stop glass from fracturing, but tests have proved,

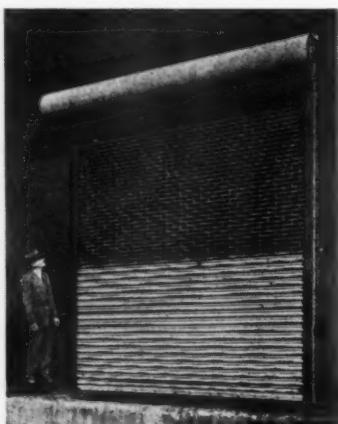
according to the manufacturer, that it will keep broken glass in place. It may be applied by brushing the material on the interior of clean glass. Windows then may be cleaned, when necessary, with mild soap solutions without affecting the strength of the protective film. After the emergency, the coating may be removed easily either by peeling with a razor blade or by washing off with solvents.—Roxalin Flexible Finishes, Inc., Elizabeth, New Jersey.

• **TYING MACHINE**—Boxes, small bags, packages, cartons, bundles and containers can be tied quickly and securely with the Felins Pak-Tyer. Available in four sizes, the machine operates at speeds of from 35 to 60 packages per minute. A string arrester holds the twine securely while it encircles the package, permitting the machine to draw the string tight and make a firm tie. Flexible shuttle prevents twine breakage, and a friction twine holder



permits the string to run without resistance when placing package in tying position.—Felins Tying Machine Co., 2950 No. 14th St., Milwaukee, Wisconsin.

• **ROLLING DOOR**—A novel combination of rolling door below and grille above was introduced recently. The entire structure coils up overhead around the steel



tube carrying counter-balancing springs. The operation is from either inside or outside by means of a hand crank shaft running through the wall. Operation by push-up (self coiling), chain and gear, or motor may be substituted.—Cornell Iron Works, Inc., 36th Ave. and 13th St., Long Island City, New York.



• **GLASS BLOCKS**—Development of a transparent glass building block which affords almost window-like vision was announced recently. The new block, called the "Vue" glass block, was developed for specific needs where some outside vision is desired. They are used with panels of non-transparent glass block affording vision. The Vue block combines the high insulation properties of the usual glass block. Like other blocks produced by this company they contain a partial vacuum or dead air space, which results in the glass block panel having approximately the same insulation value as a solid masonry wall eight inches thick, and more than twice the insulation value of ordinary single-glazed windows. Pittsburgh Corning Corp., Grant Building, Pittsburgh, Penn.

• **BLACK-OUT**—A new black-out coating for industrial plant windows and skylights was announced recently, and it is claimed that this coating meets all the authoritative specifications and recommended practices, and features easy removal when danger no longer exists. Not a paint but a smooth flowing liquid coating which is manufactured from a pyrobitumen ore especially refined and mixed with quick drying, volatile solvents and a secret ingredient which provides complete opacity and absolutely gloss-free surface. Carbozite Black-out Black, as this product is called, can be sprayed or brushed on quickly. Only one coat is required to assure complete protection against light penetration, according to the manufacturer, and drying is completed in six to eight hours. Carbozite Corporation, First National Bank Bldg., Pittsburgh, Pa.

YOURS FOR THE ASKING

1042

- **EDUCATIONAL CALENDAR** — Recently made available is a combination calendar and educational course on machine tools and machine shop practice. In many ways, this calendar contributes to defense training programs. It serves a useful purpose in teaching basic principles of production. Included are 12 comprehensive lessons on metal working. Photomicrographic studies of material cut by each machine are high-lighted. The calendar measures 40 by 22 inches, has a strong metal binding which permits hanging of the calendar without sagging or curling of pages, and by way of being different, starts with March, 1942, but carries through February, 1943. Continental Machines, Inc., 1301 Washington Avenue, So., Minneapolis, Minnesota.

1043

- **LAMINATED SHIMS** — An eight-page booklet giving the history of the development of industrial and mechanical applications of the laminated shim has just been issued. The book describes the use of the shim for fitting of machine parts in original assembly as well as for making service adjustments. The manufacturer feels such information is especially timely now that the laminated shim is proving such a valuable aid to war industries. Laminated Shim Co., Inc., Glenbrook, Conn.

1044

- **RADIO CATALOG** — This catalog contains thousands of quality parts from the nation's leading manufacturers, offering "everything in radio and electronics" from a single source of supply. It was planned carefully and organized for quick reference. A separate section is devoted to electronic parts, and a varied line of PA sound systems, intercommunication units, air-raid and emergency alarm systems and paging systems for all requirements are illustrated. Included are numerous fluorescent lighting units for both commercial and industrial use. Allied Radio Corp., 833 West Jackson Blvd., Chicago, Illinois.

1045

- **PAINT SELECTOR** — A new handy means of selecting the best paint without detailed technical study of properties of all finishes that might be suitable for a given application is provided in the Val-dura paint selector. The selector conveniently makes available to architects, contractors, purchasing officials, dealers and plant and building maintenance engineers all information on properties of, and all application data necessary to choose properly from 43 paint, enamel and varnish products. It folds to letterhead size,

making it convenient to keep on a desk top for daily reference, or to file for future use. Two charts are embodied in the selector. Fifty-one divisions on the first chart list all types of surfaces that might be encountered in industrial, commercial and residential painting, and under which are listed one or more paints suitable for application. A second chart gives all properties of each paint to facilitate selection of the finish most suitable when a choice is offered by the first chart. American-Marietta Co., 43 East Ohio Street, Chicago, Illinois.

1046

- **AIRCRAFT TOOLS** — Twenty-eight different types of tools necessary for the production lines of war material are shown in a spiral-bound catalog. A picture of each tool is given along with a complete explanation of its application, features, construction and materials, sizes and ordering instructions. The manufacturer claims the fundamental requirements of every tool presented are: Accuracy, to reduce reworks and rejections; applicability, to assure the right tool for the right job. Aero Tool Co., 231 West Olive Street, Burbank, California.

1047

- **TRANSCEIVER** — Bulletin T-42, a four-page leaflet covering the new Transceiver, a four-pound combination ultra short-wave, self-contained transmitter and receiver, has just been released. Method of operation, its range, power and construction are explained. Communications Division, Weltronic Corp., 3080 East Outer Drive, Detroit, Michigan.

1048

- **EFFICIENT PACKAGING** — A new issue of the General Box, telling how manufacturers of various types of products are solving their shipping problems, was made available recently. This new booklet contains 12 pages of helpful, authoritative information, giving conclusive evidence of how engineered containers are helping manufacturers conserve man-hours, break shipping room bottlenecks, reduce shipping charges, eliminate loss and damage claims, and often lower the original container costs. Numerous pictures appear throughout the book. General Box Co., 500 No. Dearborn, Chicago, Illinois.

If any of this material interests you, jot down the numbers on a postal card and send to WESTERN INDUSTRY, 503 Market Street, San Francisco. We will see that full information reaches you.

1049

- **NETWORK TRANSFORMERS** — For general industrial use, particularly for aviation, ordnance and munition plants and oil refineries, secondary network transformers are described in a new bulletin recently announced. A general discussion of systems covers overhead, spot, vertical and industrial networks. Transformers for each system are described, special attention being given to accessibility, safety and maintenance. Construction details include continuous wound coils, insulated core steel tanks and high voltage leads. Accessories described are rotary switches, no-load tap-changers and network protectors. Illustrations to make the test easy to follow include a system diagram, close-ups of transformer parts, sectional views and line drawings. Bulletin B-3008. Westinghouse Electric and Mfg. Co., East Pittsburgh, Penn.

1050

- **GRADE CROSSINGS** — Made of laminated panels of pressure-creosoted wood, grade crossings are described in a leaflet (Form G-3) just issued. Advantages of such grade crossings, service results and construction and installation details are shown. Wood Preserving Division, Koppers Company, Koppers Bldg., Pittsburgh, Penn.

1051

- **DEFENSE BULLETIN** — A clear, concise explanation of how the national defense program affects purchase, use and maintenance of temperature measuring and control instruments is given in Defense Bulletin No. 1, recently published. The six-page bulletin has been issued to aid industrial instrument users in defense and non-defense industries to gain maximum life and efficiency from pyrometric equipment now installed and being installed. Substitute materials are suggested for use in place of materials made critical because of the war program, and compares the properties of the original and substitute materials. Wheelco Instruments Co., Harrison and Peoria Streets, Chicago, Illinois.

1052

- **CONVEYORS** — "First Line" is the title of this eight-page bulletin No. 65, which was made available recently. As an aid to national defense, the manufacturer suggests that conveyors help solve the present problem of the growing necessity of expanding machine shops to take care of the steadily increasing defense orders. Different types of conveying machinery are illustrated and their application explained. Helpful hints are given for stepping up production. Standard Conveyor Co., North St. Paul, Minnesota.

THE LAST WORD

By the Editors

GOSSIP in political circles—San Francisco is unable to get priorities for badly needed fire fighting equipment. Reason: for the time being at least the city is in disfavor at Washington. Why? Failure to see eye to eye with some Washington officials who sponsored the plan for a huge issue of municipal bonds to enable Hetch Hetchy (city owned) to purchase the privately owned San Francisco distribution system. The voters last fall turned down the proposal at the municipal elections.



San Francisco Scene

Kindly lady with two Jap servants had no doubt of their loyalty. A visitor to her home was less enthused, and the two Japs working in the garden were called in. "Now, Toyo," said the kindly old lady, "if the Japanese came to this country you would not attack your employer with whom you have been working so many years?" "Oh no, madame," quickly replied Toyo, "that not my job—me burn down the house! My brother Togo, handle you."

We can't vouch for the authenticity of this story.

Aircraft Plants

At least one southern California aircraft plant recently went to a five-day week basis from the six-day week. Another is likely to do so very shortly. This is not as bad as it seems on its face. Here are the facts: Supplies of parts, propellers and the thousand and one gadgets needed to make a plane have not kept pace with the huge increase of fuselage production. Lack of one given part will delay getting a plane into action. The situation is being ironed out; it is regrettable but not too serious.

DEFENSE LOANS

Continued from page 11

5.—Create liquid tax reserves. You cannot pay income taxes out of receivables, inventory or work in progress. Many firms figure they will use Uncle Sam's money (which they are holding as trustee) as working capital until pay day comes around and then plan to make payment of taxes due this year out of next year's taxes on accruing profits. While the temptation is great, this is not sound practice. The only safe procedure is to segregate tax funds each month, as they accrue set up a special cash fund, or purchase tax anticipation certificates. A mere bookkeeping reserve does

not make funds available to pay taxes. Only cash or a liquid credit account can do the job. Provide for Uncle Sam by setting up this reserve fund monthly and be safe.

BUSINESS BOOKS

Your Business Goes to War—a book which should prove invaluable to every businessman who is even remotely concerned with defense work. Study of this volume produced by an expert with a large Washington and New York staff at his command may save hours of research, and in some cases, many days of delay in finding out what to do and how to do it. The book has been prepared since the appointment of Donald Nelson as WPB head and since passage of the price control bill. The author of the book, Leo M. Cherne, is co-founder and executive secretary of the Research Institute of America which has upwards of 20,000 businessmen as subscribers to its service. Some of the subjects treated are: How to secure raw materials under rationing, priorities and allocations, and what agencies to approach and how; how to secure and perform government contracts and sub-contracts, and how to convert plants to war-time production. Price \$3.50, published by Houghton, Mifflin & Co., 2 Park Street, Boston, Mass.



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COVER PICTURE

Nearly 700 women are employed at the Vega Aircraft Corp. plant at Burbank, Calif. and the number is constantly increasing. Miss Frances E. Harman is shown drilling rivet holes for the fuselage section of a Ventura bomber. Very recently she was a waitress in a Los Angeles restaurant. Women adapt themselves very quickly to their new jobs and are more pains-taking than men on jobs to which they are assigned. They release men for more important assignments.

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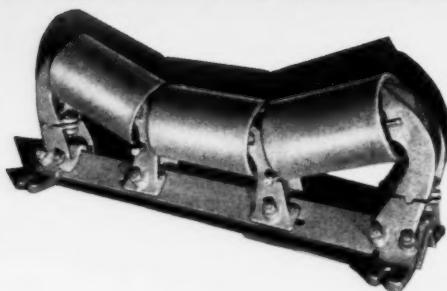
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